International Conference on Advanced Drug Delivery

Editors

Dr. Prakash Katakam
Mr. Jadhav Suryakantha
Mr. Mohammed Zameeruddin

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1. RECENT THERAPEUTIC APPROACHES FOR TREATMENT OF ALZHEIMER'S DISEASE

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Abstract: Alzheimer's disease (AD) is a progressive neurodegenerative disease and accounts for most cases of dementia. The prevalence of AD has increased in the current rapidly aging society and contributes to a heavy burden on families and society. Despite the profound impact of AD, current treatments are unable to achieve satisfactory therapeutic effects or stop the progression of the disease. Finding novel treatments for AD has become urgent. In this paper, we reviewed novel therapeutic approaches in five categories: anti-amyloid therapy, anti-tau therapy, anti-neuroinflammatory therapy, neuroprotective agents including N-methyl-D-aspartate (NMDA) receptor modulators, and brain stimulation. The trend of therapeutic development is shifting from a single pathological target to a more complex mechanism, such as the neuroinflammatory and

neurodegenerative processes. While drug repositioning may accelerate pharmacological development, non-pharmacological interventions, especially repetitive transcranial magnetic stimulation (rTMS) and transcranial direct current stimulation (tDCS), also have the potential for clinical application. In the future, it is possible for physicians to choose appropriate interventions individually on the basis of precision medicine. The pathophysiology of Alzheimer's disease (AD) includes the deposition of amyloid beta protein (Abeta) and the ensuing initiation of a variety of secondary processes, including tau hyperphosphorylation, excitotoxicity, oxidation, and inflammation. Nerve cell loss in structures responsible for manufacturing neurotransmitters results in a variety of neurochemical deficits. Current therapeutic approaches to the treatment of AD include cholinesterase inhibitors for mild to moderate disease, memantine for moderate to severe disease, and vitamin E or selegiline. Reduction of Abeta generation or aggregation, enhancement of Abeta removal, interruption of tau hyperphosphorylation, and the use of more efficacious antioxidant or anti-inflammatory agents represent promising therapeutic strategies currently being investigated. Improved methodologies for clinical trial design and analysis

and the development of biological markers may hasten the identification of effective treatments for AD.
Keywords: Alzheimer's Disease; NMDA; Amyloid; Brain Stimulation; Neuroinflammation, Neuroprotection, Precision Medicine; Rtms; Tdcs.

2. NANOROBOT

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Abstract: Nowadays medical science is more and more improving with the blessings of new scientific discoveries. Nanotechnology is such a field which is changing vision of medical science. New automated procedures are being discovered with new aspects of self-guided nanorobots. Nanorobot is an excellent tool for future medicine. We can envision a day when you could inject billions of these nanorobots that would float around in your body. Nanorobots could carry and deliver drugs into defected cells. These nanorobots will be able to repair tissues, clean blood vessels and airways, transform our physiological capabilities, and even potentially counter act the aging process. Many scientists working on this bright field of nanorobots especially on Alzheimer disease and cancer treatments. The engineering of molecular products needs to be carried out by robotic devices, which have been termed Nano robots. Nano robotics, sometimes referred to as molecular robotics, is an

emerging research area as evidenced by recent topics in the literature. A multifunctional platform based on nanorobots, with various types of nanomachines will surely fight against major diseases like cancer, HIV etc. In this review, we will summarize briefly about nanorobots and its tools, mechanism, approaches and main futuristic applications of the same which mainly useful for medicinal and to develop new formulations related to nanotechnology to cure the major diseases. Nanorobots differ from macro-world robots, specifically in their nano sized constructs. Assembly and realization of nanorobots depend on the principles of molecular nanotechnology and mechano-synthetic chemistry. Practically, these systems are nano-electromechanical devices that are capable to carry out pre-programmed functions in a reliable and accurate manner with the help of energy provided by a preinstalled nanomotor or nano-machine. Due to their small size and wide functional properties, nanorobots have created exceptional prospects in medical, biomedical and pharmaceutical applications. Although, no technology is available to construct artificial nanorobots, it is now possible to create nanorobots by using biological means. The review presents a brief discussion on basic nano-robotics

and its possible applications in medical, biomedical and pharmaceutical research.

Keywords: Nanotechnology, Nanomedicine, Nanomachines, Nanomotors, Bionanorobots

3. NIOSOMES A NOVEL TREND IN DRUG DELIVERY

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Abstract: Niosomes a novel trend in drug delivery in which medication is encapsulated in a vesicle and the vesicle made up of bilayer of non-ionic surface active agents and then it is named as niosomes. However niosomes are structurally similar to liposomes in having a bilayer, and the materials used to prepare niosomes make them more stable. After preparing the dispersion of niosomes unentrapped drug is separated by gel filtration or centrifugation. A method of invitro release rate study includes the use of dialysis tubing. niosomes are either unilamellar or multilamellar vesicles formed from synthetic non-ionic surfactants. Niosomal drug delivery applicable to many pharmacological agents for their action through various diseases. Hence niosomes have more penetrating capability than the previous preparations of emulsions. Niosome are non-ionic surfactant vesicles obtained on hydration of synthetic nonionic surfactants, with

or without incorporation of cholesterol or their lipids. They are vesicular systems similar to liposomes that can be used as carriers of amphiphilic and lipophilic drugs. Noisome are promising vehicle for drug delivery and being non-ionic; and Niosomes are biodegradable, biocompatible non-immunogenic and exhibit flexibility in their structural characterization. Niosomes have been widely evaluated for controlled release and targeted delivery for the treatment of cancer, viral infections and other microbial diseases. Niosomes can entrap both hydrophilic and lipophilic drugs and can prolong the circulation of the entrapped drug in body. Encapsulation of drug in vesicular system can be predicted to prolong the existence of drug in the systemic circulation and enhance penetration into target tissue, perhaps reduce toxicity if selective uptake can be achieved. This review article focuses on the advantages, Disadvantages, preparation methods, factors affecting, characterizations, in vitro methods, drug release kinetics, and applications of noisome. Niosomes are promising vehicle for drug delivery and being non-ionic; it is less toxic and improves the therapeutic index of drug by restricting its action to target cells. This systemic review article deals with preparation methods, characterizations, rationale, advantages,

disadvantages, and applications of niosomes. Niosomes are microscopic lamellar structures ranging between 10 to 1000 nm constitute of non-ionic surfactant and cholesterol. Niosomes are preferred over liposome due to chemicals stability and economy.

Keywords: Niosomes, Compositions, Preparation Methods, Factors affecting, Characterizations, Invitro methods and Applications

4. MICRO EMULSION

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Abstract: Microemulsions (MEs) refer to monophasic, optically isotropic, thermodynamically stable, and clear dispersions formulated from oil, water, surfactant, and a cosurfactant. The term microemulsion, which was first used in 1943 by Hoar and Schulman, is ambiguous because it is not clear from the term that several phases and structures can be present. Water or oily droplets and bicontinuous structures can form even within the microemulsion domains. Microemulsions are effective drug delivery vehicles since they are simple to prepare (an external energy source is not required) and are thermodynamically stable (ME phases do not easily separate over time and a majority of microemulsions are stable for many years). Compared to regular emulsions, microemulsions form spontaneously following the mixing of the correct amounts of the constituents, with no need for a supplementary source of mechanical energy. Another difference is that microemulsions are

clear or translucent with droplet size in nanometers, while emulsions are coarse, milky dispersions with droplet size usually measured in micrometers. The use of microemulsions for the transdermal delivery of specific therapeutic agents is also described. Microemulsions are clear transparent, thermodynamically stable dispersion of oil and water, stabilized by interfacial film of surfactant frequently in combination with a co-surfactant. Recently there has been a considerable interest for microemulsion formulation, for the delivery of hydrophilic as well as liphophlic drug as drug carriers because of its improved drug solubilisation capacity, long shelf life, ease of preparation and improvement of bioavailability. In this present review, we have discuss biopharmaceutical aspects, advantages, disadvantage, theories, formulations, marketed lipid based formulations, factors affecting formulation and phase behaviour, preparations, characterization of microemulsion, pharmaceutical application. The assortment of very different microstructures behind such a univocal macroscopic definition is presented together with the experimental approaches to their determination.

Keywords: Microemulsion, Lipid Based Formulations, Surfactant Based Formulations of Microemulsion.

5. MICROENCAPSULATION

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Abstract: Microencapsulation is a process in which active substances are coated by extremely small capsules. It is a new technology that has been used in the cosmetics industry as well as in the pharmaceutical, agrochemical and food industries, being used in flavors, acids, oils, vitamins, microorganisms, among others. The success of this technology is due to the correct choice of the wall material, the core release form and the encapsulation method. Therefore, in this review, some relevant microencapsulation aspects, such as the capsule, wall material, core release forms, encapsulation methods and their use in food technology will be briefly discussed. The development of new functional foods requires technologies for incorporating health promoting ingredients into food without reducing their bioavailability or functionality. In many cases, microencapsulation can provide the necessary protection for these compounds. Microcapsules offer food processors a means to protect sensitive

food components, ensure protection against nutritional loss, utilize sensitive ingredients, incorporate unusual or time-release mechanisms into the formulation, mask or preserve flavors/aromas and transform liquids into easy to handle solid ingredients. Various techniques can be employed to form microcapsules, including spray drying, spray chilling or spray cooling, extrusion coating, fluidized-bed coating, liposomal entrapment, lyophilization, coacervation, centrifugal suspension separation, cocrystallization and inclusion complexation. This article describes the recent and advanced techniques of microencapsulation. Controlled release of food ingredients at the right place and the right time is a key functionality that can be provided by microencapsulation. Timely and targeted release improves the effectiveness of food additives, broadens the application range of food ingredients, and ensures optimal dosage, thereby improving the cost effectiveness for the food manufacturer. Microparticles offer various significant advantages as drug delivery systems, including: (i) an effective protection of the encapsulated active agent against (e.g. enzymatic) degradation, (ii) the possibility to accurately control the release rate of the incorporated drug over periods of hours to months, (iii) an easy

administration (compared to alternative parenteral controlled release dosage forms, such as macro-sized implants), and (iv) Desired, pre-programmed drug release profiles can be provided which match the therapeutic needs of the patient.

Keywords: Drug delivery systems, Microcapsules, Controlled release, Microencapsulation

6. USE OF NATURAL COAGULANTS IN WASTE WATER TREATMENT

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Abstract: Natural waterways are contaminated due to industrialization, urbanization, population growth etc., degrading their quality. Contaminated waterways cause numerous health and environmental hazards. Therefore, it is imperative to remove contaminants. Coagulation is one of the efficient primary chemical treatment methods that could be used to treat such contaminants. Natural coagulants have gained popularity in the water and wastewater treatment industry due to their advantage over chemical coagulants. Natural coagulants are derived from either plants, animals, or microorganisms. This study has elaborated on the nature and mechanisms, and types of natural coagulants. In this review work, many studies have proposed several types of natural coagulants. However, plant-based natural coagulants extracted from different plant components have been extensively discussed and compared based on their

application and efficiency in water and waste treatment. The primary purpose of this review is to refine the knowledge on the potential use and optimization of the effectiveness of eco-friendly and sustainable natural coagulants. Besides, the development efforts and the barriers reported by recent findings for the commercialization of natural coagulants are also discussed. Further, few modified natural coagulants have also been presented for exploring the other possible approaches to promote their usage in water and wastewater treatment in the future studies.The high expense of chemical coagulant-treated water forces most people in rural regions to rely on easily available sources, which are usually of poor quality, and expose them to waterborne infections. According to this statement, the purpose of this study was to confirm the efficiency of extracting powder Moringa oleifera seeds, which are widely available in rural regions. The experiment was done based on a random design load of 0.1, 0.2, 0.3, 0.4, 0.5, and 0.6 g/500 ml of powder extracted from Moringa seeds. The treatment of waste water using chemical coagulants are considered to be very expensive and over dosage causes harmful effects on human beings. And for limiting the chemical used in treatment of waste water natural coagulants can be the best substitute. The study

aimed to evaluate the efficiency of natural coagulants like orange peel, papaya seed and neem leaf powder for the evaluation of purity in collected waste water sample. Three characteristics of water sample are tested this includes Turbidity, PH, and TSS. Jar test apparatus was used for determining the optimum dosage of natural coagulants. After the preparation and application of coagulants in the collected sample a dosage of 0.6g of natural coagulant is best suited for purification. Since natural coagulants are environmental friendly and low cost it could be widely used in future.

Keywords: Chemical coagulant, Natural coagulant, Jar test, Turbidity, TSS, pharmaceuticals, Moringa oleifera.

7. NEW APPROACHES AND RECENT TRADE IN MICROEMULSION

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Abstract: Microemulsions are one of the best candidates as novel drug delivery system because of their long shelf life, improved drug solubilization with ease of preparation and administration. Microemulsions are thermodynamically stable and optically isotropic liquid solutions of oil, water and amphiphile. They have emerged as novel vehicles for drug delivery which allow controlled or sustained release for ocular, percutaneous, topical, transdermal, and parenteral administration of medicaments. Microemulsions can be easily distinguished from normal emulsions by their low viscosity, transparency and more accurately their thermodynamic stability. Microemulsions have great range of applications and uses such as in pharmaceuticals, agrochemicals, cutting oils, biotechnology, food, cosmetics, analytical applications, environmental detoxification etc. The main objective of this review paper is to discuss

microemulsions as drug carrier system with other possible applications. Microemulsions, comprising oil, water and a surfactant, in association with some co-surfactant, are thermodynamically stable systems. They have found applications in a large number of chemical and pharmacological processes due to their unique properties such as large interfacial area, low interfacial tension, and most importantly, the ability to solubilize and deliver hydrophobic drugs. In addition to the oral and intravenous route, they are suitable for drug delivery through the ophthalmic, vaginal, pulmonary, dental, and topical routes. This review highlights the properties and several recent developments in the use of microemulsions for medical treatment purposes including targeted drug delivery. A drug delivery method has been explored as microelectric emulsions that are optically isotropical, and thermodynamically stable water, oil, surfactant and/or surfactants due to their potential to solubilize poorly water soluble medicines and to their increased topical and systemic availability. The lipophilic drugs mobility may be solubilized and the skin can be entered quickly and effectively. Thus the topical administration of drugs is helpful. Many commonly utilized topical treatments such as salts, creams and lotions have numerous drawbacks

such as sticky texture, causing discomfort when applied, They have a lower coefficient of propagation so applied by rubbing and they also show a stability concern. The difficulty of stability of the microemulsion is low viscosity, but it may be solved by adding viscosity and the moisturizing stratum corneum into topical DDS, which increases dermal penetration and skin flow of medical devices. Because of all these considerations, the use of transparent gels in pharmaceutical preparations has grown in the main semi-solid preparation category.

Keywords: Microemulsion, Topical drug delivery, Polymers, Transdermal, Parenteral

8. NATURAL ANTICANCER DRUGS

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Abstract: Globally cancer is a disease which severely effects the human population. There is a constant demand for new therapies to treat and prevent this life-threatening disease. Scientific and research interest is drawing its attention towards naturally-derived compounds as they are considered to have less toxic side effects compared to current treatments such as chemotherapy. The Plant Kingdom produces naturally occurring secondary metabolites which are being investigated for their anticancer activities leading to the development of new clinical drugs. With the success of these compounds that have been developed into staple drugs for cancer treatment new technologies are emerging to develop the area further. New technologies include nanoparticles for nano-medicines which aim to enhance anticancer activities of plant-derived drugs by controlling the release of the compound and investigating new methods for

administration. This review discusses the demand for naturally-derived compounds from medicinal plants and their properties which make them targets for potential anticancer treatments. Natural products, with remarkable chemical diversity, have been extensively investigated for their anticancer potential for more than a half-century. The collective efforts of the community have achieved the tremendous advancements, bringing natural products to clinical use and discovering new therapeutic opportunities, yet the challenges remain ahead. With remarkable changes in the landscape of cancer therapy and growing role of cutting-edge technologies, we may have come to a crossroads to revisit the strategies to understand nature products and to explore their therapeutic utility. This review summarizes the key advancements in nature product-centered cancer research and calls for the implementation of systematic approaches, new pharmacological models, and exploration of emerging directions to revitalize natural products search in cancer therapy. The present time Natural products are considered to be symbols of protection in comparison to the synthetic product that are regarded as unsafe to human life and environment. Although a large number of synthetic drugs are being added to the world of present

pharmacopoeia, but still no system of medicine in the world has been able to solve all the health problems, which include diseases like Cancer. Plant-derived compounds have played an important role in the development of several clinically useful anti-cancer agents. These include vinblastine, vincristine, the camptothecin derivatives, topotecan and irinotecan, etoposide, derived from epipodophyllotoxin, and paclitaxel (taxol). In India, there is an ocean of knowledge about medicinal plants and rich medicinal flora, but still only a few pearls have been searched as therapeutic agents.

Keywords: Cancer, Anti-Cancer Agents, Natural Plant, Secondary Metabolites, Polyphenols, Cytotoxicity, Epigenetics

9. NOVEL APPROACHES OF TACLONEX TOPICAL SUSPENSION FOR PSORIASIS

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Abstract: Topical treatment is the cornerstone for the management of mild to moderate psoriasis. Despite efforts in drug development, patient's satisfaction with the available topical treatments is limited. A strategy to improve safety, efficacy and comfort of topical treatment provides the development of new drug delivery and drug carrier systems. This review provides an overview of recent advances in this field with a focus on psoriasis. Laser-assisted drug delivery, foam formulations, nanoparticles, ethosomes, and niomes are considered. Hopefully, these new developments will improve topical drug therapy and patient satisfaction. Plaque psoriasis is a common, chronic and relapsing inflammatory skin disease clinically characterized by erythema and scaling desquamation. As over 90% of psoriasis patients benefit from topical therapies, local treatments continue to play an eminent role in management strategies. One such topical

treatment is the fixed dose combination of calcipotriol (CAL) and betamethasone dipropionate (BDP). Psoriasis affects 1%–3% of the population in the United Kingdom and can convey significant detriment to the physical and mental health of sufferers. Plaques of psoriasis typically affect the extensor skin surfaces and scalp. Tacrolimus is a macrolide calcineurin inhibitor licensed for immunosuppression in transplant patients and topical administration in atopic dermatitis. Tacrolimus administered orally and in topical form has been shown to produce successful outcomes in patients with psoriasis. Topical tacrolimus is particularly effective for inverse psoriasis, which is likely to be due to the reduced level of induration seen in these psoriatic lesions, which allows greater skin penetrance, compared with hyperkeratotic plaques of psoriasis on the body. It is also notable that the areas affected by inverse psoriasis are more susceptible to adverse effects of topical corticosteroid therapy, and thus a topical preparation without the risk of skin atrophy, telangiectasia, and striae could be a valuable addition to current topical treatment options. Oral tacrolimus has shown efficacy in the treatment of severe, refractory psoriasis. Compared to ciclosporin, systemic tacrolimus may be more suited to a patient population with

increased cardiovascular risk. This review will draw together the current literature on topical and oral tacrolimus for the treatment of psoriasis. Efficacy and safety have been evaluated by case reports and randomized controlled trials and comparisons have been made between tacrolimus therapy and standard treatment.

Keywords: Tacrolimus, Psoriasis, Topical Therapy, Oral Treatment

10. A REVIEW: SYNTHESIS OF POLYHYDROUINOLINE DERIVATIVES VIA DIFFERENT METHODS

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Abstract: Polyhydroquinoline derivatives have been prepared efficiently in a one-pot synthesis via Hantzsch condensation using Cs2.5H0.5PW12O40 as a heterogeneous and reusable catalyst. The present method uses molten salt media instead of hazardous organic solvents. The present methodology offers several advantages such as simple procedure, excellent yields, and a short reaction time.Tin dioxide (SnO2) nanoparticles efficiently catalyzed unsymmetrical four-component Hantzsch condensations of various aldehydes, dimedone, ethyl acetoacetate, and ammonium acetate to form polyhydroquinoline derivatives in excellent yields. This novel method offers several advantages over the traditional method of synthesizing these compounds, including safety, mild conditions, short reaction times, high yields, and an easy

workup. Tin dioxide (SnO_2) nanoparticles efficiently catalyzed unsymmetrical four-component Hantzsch condensations of various aldehydes, dimedone, ethyl acetoacetate, and ammonium acetate to form polyhydroquinoline derivatives in excellent yields. This novel method offers several advantages over the traditional method of synthesizing these compounds, including safety, mild conditions, short reaction times, high yields, and an easy workup. The synthesis of a new porous polymeric network (PPN) using triphenylamine and α,α-dibromo-*p*-xylene by a Friedel–Crafts alkylation promoted by anhydrous $FeCl_3$ as an oxidizing agent. Sulfonation of PPN led to a sulfonated porous polymeric network (SPPN) having high surface acidity and high BET surface area. We characterized the PPN and SPPN materials thoroughly by using powder XRD, FTIR spectroscopy, ^{13}C solid-state magic-angle spinning NMR, field-emission SEM, high-resolution TEM, and N_2 sorption techniques. The sulfonated material SPPN was then employed as a heterogeneous, reusable, and environmentally benign organic solid-acid catalyst for the one-pot synthesis of biologically important polyhydroquinoline derivatives under microwave irradiation. he present method offers several advantages over other reported methods such as

easy separation, mild reaction condition, and excellent yield of desired product. Furthermore, the catalyst can be reused without loss in activity.
Citing Literature

Keywords: Polyhydroquinoline, Hantzsch condensations, ethyl acetoacetate.

11. AN EMERGING DRUG DELIVERY SYSTEM: NANOSPONGES- A REVIEW

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Abstract: The recent advance in nanotechnology has lead to the development of targeted drug delivery system. However, targeting a molecule to a particular site using a drug delivery system effectively requires a specialized drug delivery system. The discovery of nanosponge has become a significant step in overcoming certain problems such as drug toxicity, poor bioavailability and release of drug in a predictable fashion as they can accommodate both hydrophilic and hydrophobic drug. Nanosponges exhibit a porous structure in nature which has the unique ability to entrap the drug moieties and offers a merit of desire release. Nanosponges are tiny sponges that can circulate in the body to reach the specific site and binds on the surface to release the drug in a controlled and predictable manner. Nanosponges can be formulated by crosslinking of cyclodextrine with carbonyl or di-carboxylate (Crosslinkers). Nano sponge's technology has

been explored widely for the delivery of drugs for oral administration, topical administration, and parental administration. Effective targeted drug delivery systems have been a dream for a long time, but it has been largely frustrated by the complex chemistry that is involved in the development of new systems. The invention of nanosponges has become a significant step toward overcoming these problems. Nanosponges are tiny sponges with a size of about a virus, which can be filled with a wide variety of drugs. These tiny sponges can circulate around the body until they encounter the specific target site and stick on the surface and begin to release the drug in a controlled and predictable manner. Because the drug can be released at the specific target site instead of circulating throughout the body it will be more effective for a particular given dosage. Another important character of these sponges is their aqueous solubility; this allows the use of these systems effectively for drugs with poor solubility.Nanosponges can also serve as an effective carrier for enzyme, proteins, vaccine and antibodies. The present review highlights the method of preparation, characterization and their potential application in drug delivery system.
Keywords: Nanosponges, cyclodextrine, crosslinking, complexsponges.

12. BIONICS NOVEL APPROCHES IN HUMAN WELFARE

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Abstract: Once the topic of folklore and science fiction, the notion of restoring vision to the blind is now approaching a tractable reality. Technological advances have inspired numerous multidisciplinary groups worldwide to develop visual neuroprosthetic devices that could potentially provide useful vision and improve the quality of life of profoundly blind individuals. While a variety of approaches and designs are being pursued, they all share a common principle of creating visual percepts through the stimulation of visual neural elements using appropriate patterns of electrical stimulation. Human clinical trials are now well underway and initial results have been met with a balance of excitement and cautious optimism. As remaining technical and surgical challenges continue to be solved and clinical trials move forward, we now enter a phase of development that requires careful consideration of a new set of issues. Establishing appropriate

patient selection criteria, methods of evaluating long-term performance and effectiveness, and strategies to rehabilitate implanted patients will all need to be considered in order to achieve optimal outcomes and establish these devices as viable therapeutic options.Bionic eye has concentrated on implants which were used in human trials in the developed countries. This is the main restriction of this systematic project examines, however discusses worldwide advances in retinal prosthetic research, assesses engineering features and clinical progress of recent implant trials, and identifies potential future research areas in the field of bionic implants.

Keywords: Bionics, Robot, Neuroprosthetic Devices, Implant.

13. COLLOIDS

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Abstract: Colloid science is the science of both large molecules and finely subdivided multiphase systems. It is the system of more than one phase that colloid and surface science meet. Colloid science is interdisciplinary in many respects; its field of interest overlaps physics, biology, materials science, and several other disciplines. It is the particle dimension-not the chemical composition (organic or inorganic), sources of the sample (e.g., biological or mineralogical), or physical state (e.g., one or two phases). The colloidal solutions or colloidal dispersions are intermediate between true solutions and suspensions. In other words, the diameter of the dispersed particles in a colloidal dispersion is more than that of the solute particles in a true solution and smaller than that of a suspension. Colloid science is the science of both large molecules and finely subdivided multiphase systems. It is the system of more than one phase that colloid and surface science meet. Colloid

science is interdisciplinary in many respects; its field of interest overlaps physics, biology, materials science, and several other disciplines. It is the particle dimension – not the chemical composition (organic or inorganic), sources of the sample (e.g., biological or mineralogical), or physical state (e.g., one or two phases). The colloidal solutions or colloidal dispersions are intermediate between true solutions and suspensions. In other words, the diameter of the dispersed particles in a colloidal dispersion is more than that of the solute particles in a true solution and smaller than that of a suspension. The knowledge of colloid chemistry is required in various aspects of chemistry. It is a field that has offered more and still has much more to offer; therefore, chemists should be studious to extract more uses from this field as it still has more to offer. This article is aimed at reviewing the properties as well as some of the uses of colloids.The knowledge of colloid chemistry is required in various aspects of chemistry. It is a field that has offered more and still has much more to offer; therefore, chemists should be studious to extract more uses from this field as it still has more to offer. This article is aimed at reviewing the properties as well as some of the uses of colloids.

Keywords: Colloid, Dispersion, System, Phase, Brownian, Tyndall.

14. FORMULATION AND EVALUATION OF BILAYER TABLET BY DIRECT COMPRESSION TECHNIQUE

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Abstract: Bi-layer tablet is a new era for winning development of controlled release formulation along with various features to provide successful drug delivery. Bi-layer tablets can be crucial option to avoid chemical incompatibilities between active pharmaceutical ingredients (APIs) by physical separation and to facilitate the development of different drug release profiles. Bi-layer tablet is appropriate for chronological release of two drugs in combination and also for sustained release of tablet in which one layer is for immediate release as loading dose and second layer is maintenance dose. So use of bi-layer tablets is a very different aspect for anti-hypertensive, diabetic, anti-inflammatory and analgesic drugs where combination therapy is often used. Several pharmaceutical companies are

currently developing bi-layer tablets, for a variety of reasons: patent extension, therapeutic, marketing to name a few. General tablet manufacturing principles remain the same, there is much more to consider because making multi-layer tablets involves multiple often incompatible products, additional equipment and many formulation and operation challenges. The present project work provides an introduction to bi-layer tablet technology, challenges in bi-layer tablet manufacturing, various tablet presses used, quality and GMP requirements for their production various techniques used for bi-layer tableting and recent developments in the field of bi-layer technology.The tablet was prepared having immediate release layer of levocetirizine and sustained release layer of Salbutamol. The bilayer tablets were prepared by direct compression method using HPMC K100 and K15M as release rate controlling hydrophilic polymers. Croscarmellose sodium was used as superdisintegrant for immediate release layer. Pre-compression parameters and physical characteristics were evaluated for prepared formulations.

Keywords: Bilayer Tablets, Drug Delivery System, Single Dose, Superdisintegrant

15. GREEN SYNTHESIS OF NANOPARTICLE

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Abstract: Nanotechnology is a new and emerging technology with wealth of applications. It involves the synthesis and application of materials having one of the dimensions in the range of 1-100 mm. A wide variety of physico-chemical approaches are being used these days for the synthesis of nanoparticles (NPs). However, biogenic reduction of metal precursors to produce corresponding NPs is eco-friendly, less expensive, free of chemical contaminants for medical and biological applications where purity of NPs is of major concern. Nanotechnology is a developing branch of pharmaceutical sciences wherein the particles extend in nano sizes and turn out to be more responsive when contrasted with their unique counter parts. In the past numerous years, the utilization of synthetic concoctions and physical strategies were in mould; however, the acknowledgment of their toxic impacts on human well-being and condition influenced serious world

view for the researchers. Presently, green synthesis is the watch word for the combination of nanoparticles (NPs) by plants or their metabolites. This innovation is particularly compensating as far as decreasing the poisonous quality caused by the conventionally integrated NPs. In this review, we cover the perspectives by which metal particles can be integrated from green methods in the perspective of green methods utilized in the NPs combination. In the green strategies, plant metabolites and natural substances are utilized to orchestrate the NPs for the pharmaceutical and other applications.Biogenic reduction is a Bottom Up" approach similar to chemical reduction where a reducing agent is replaced by extract of a natural products with inherent stabilizinggrowth terminating capping properties. Furthermore, the nature of biological entities in different and concentrations in com- bination with reducing organic agents influence the size and shape of NPs. Present review focuses on microbes or plants based green synthesis of Ag. Au, Cu, Fe, Pd, Ru, PbS, CdS, CuO, CeO2, FejO. TiO2, and ZnO NPs and their potential applications.

Keywords: - Biological applications Biogenic reduction Eco-friendly nanoparticles.

16. MICELLES

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Abstract: Self-assembly of amphiphilic polymers with hydrophilic and hydrophobic units results in micelles (polymeric nanoparticles), where polymer concentrations are above critical micelle concentrations (CMCs). Recently, micelles with metal nanoparticles (MNPs) have been utilized in many bio-applications because of their excellent biocompatibility, pharmacokinetics, adhesion to biosurfaces, targetability, and longevity. The size of the micelles is in the range of 10 to 100 nm, and different shapes of micelles have been developed for applications. Micelles have been focused recently on bio-applications because of their unique properties, size, shape, and biocompatibility, which enhance drug loading and target release in a controlled manner. Polymeric micelles, *i.e.,* aggregation colloids formed in solution by self-assembling of amphiphilic polymers, represent an innovative tool to overcome several issues related to drug administration, from the low water-solubility to

the poor drug permeability across biological barriers. With respect to other nanocarriers, polymeric micelles generally display smaller size, easier preparation and sterilization processes, and good solubilization properties, unfortunately associated with a lower stability in biological fluids and a more complicated characterization. Particularly challenging is the study of their interaction with the biological environment, essential to predict the real *in vivo* behaviour after administration. This review focused on how CMC has been calculated using various techniques. Further, micelle importance is explained briefly, different types and shapes of micelles are discussed, and further extensions for the application of micelles are addressed.

Keywords: Polymeric Micelles, Nanocarriers, Biosurfaces, Self-Emulsifying.

17. MONITORING OF THE MEDICATION DISTRIBUTION

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Abstract: For the past 15 years since its appearance, Internet of Things (IoT) technology has been leading the planet towards a smart world where all devices and physical objects, referred to as "things", will be connected via electronic sensors through the Internet. The distribution of medication to patients at a pharmacy in certain regions is still very traditional and outdated. Patients wait for a long time in queues to receive their medications, this is mostly due to the absence of an efficient distribution system. Also, the refrigeration temperature within several pharmacies is a huge problem, as medications must be kept at a constant temperature for an optimal result. In this paper we propose a simple and reliable approach to monitor a pharmacy store, the method is based on electronic sensors connected to an Intel Galileo board, to perform a medication search and also to control the refrigeration temperature within pharmacy shelves.

The implementation cost of such systems is considerably cheaper than a software-based system; this makes such systems appropriate for underprivileged areas. This system was designed and built for a pharmacy but it can be generalized for other purposes.

Keywords: Intel Galileo board, Xively, Zapier, Potentiometer, Touch Sensor, Temperature Sensor, Relay.

18. NANOBOTS A NOVEL DRUG DELIVERY SYSTEM

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Abstract: Micro/nanorobot, as a research field, has attracted interest in recent years. It has great potential in medical treatment, as it can be applied in targeted drug delivery, surgical operation, disease diagnosis, etc. Differently from traditional drug delivery, which relies on blood circulation to reach the target, the designed micro/nanorobots can move autonomously, which makes it possible to deliver drugs to the hard-to-reach areas. Micro/nanorobots were driven by exogenous power (magnetic fields, light energy, acoustic fields, electric fields, etc.) or endogenous power (chemical reaction energy). Cell-based micro/nanorobots and DNA origami without autonomous movement ability were also introduced in this project work. Although micro/nanorobots have excellent prospects, the current research is mainly based on *in vitro* experiments; *in vivo* research is still in its infancy. To overcome the problems of gene and

drug delivery, nanotechnology has gained interest in recent years. Nanosystems with different compositions and biological properties have been extensively investigated for drug and gene delivery applications. To achieve efficient drug delivery, it is important to understand the interactions of nanomaterials with the biological environment, targeting cell-surface receptors, drug release, multiple drug administration, stability of therapeutic agents and molecular mechanisms of cell signalling involved in pathobiology of the disease under consideration. Several anti-cancer drugs including paclitaxel, doxorubicin, 5-fluorouracil and dexamethasone have been successfully formulated using nanomaterials. Quantom dots, chitosan, Polylactic/glycolic acid (PLGA) and PLGA-based nanoparticles have also been used for *in vitro* RNAdelivery.

Keywords: Micro/Nanorobot, DNA Origami, Cell-Surface Receptors, PLGA-Based Nanoparticles.

19. NANOPARTICAL

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Abstract: Nanoparticles (NPs) are tiny materials having size ranges from 1 to 100 nm. They can be classified into different classes based on their properties, shapes or sizes. The different groups include fullerenes, metal NPs, ceramic NPs, and polymeric NPs. NPs possess unique physical and chemical properties due to their high surface area and nanoscale size. Their optical properties are reported to be dependent on the size, which imparts different colors due to absorption in the visible region. Their reactivity, toughness and other properties are also dependent on their unique size, shape and structure. Due to these characteristics, they are suitable candidates for various commercial and domestic applications, which include catalysis, imaging, medical applications, energy-based research, and environmental applications. Heavy metal NPs of lead, mercury and tin are reported to be so rigid and stable that their degradation is not easily achievable, which can lead to many environmental

toxicities.In the last few decades, the vast potential of nanomaterials for biomedical and healthcare applications has been extensively investigated. Several case studies demonstrated that nanomaterials can offer solutions to the current challenges of raw materials in the biomedical and healthcare fields. This project work is provided a detailed overview of the synthesis, properties and applications of nanoparticles (NPs) exist in different forms and it focuses on various nanomaterial types (e.g., spherical, nanorods, nanotubes, nanosheets, nanofibers, core-shell, and mesoporous) that can be synthesized from different raw materials and their emerging applications in bioimaging, biosensing, drug delivery, tissue engineering, antimicrobial, and agro-foods. Depending on their morphology (e.g., size, aspect ratio, geometry, porosity), nanomaterials can be used as formulation modifiers, moisturizers, nanofillers, additives, membranes, and films. As toxicological assessment depends on sizes and morphologies, stringent regulation is needed from the testing of efficient nanomaterials dosages. The challenges and perspectives for an industrial breakthrough of nanomaterials are related to the optimization of production and processing conditions.

Keywords: Nanostructures, Nanomaterials, Drug delivery systems, Nanofillers.

20. NASAL DRUG DELIVERY SYSTEM PATCHES

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Abstract: The nasal mucosa provides a potentially good route for systemic drug delivery. One of the most important features of the nasal route is that it avoids first-pass hepatic metabolism, thereby reducing metabolism. The application of mucoadhesive polymers in nasal drug delivery systems has gained to promote dosage form residence time in the nasal cavity as well as improving intimacy of contact with absorptive membranes of the biological system. The development of neuroprotective or curative therapies is limited by a variety of factors, but none more than the highly selective blood-brain barrier. Intranasal administration can bypass this barrier completely and allow direct access to brain tissues, enabling a large number of potential new therapies ranging from bioactive peptides to stem cells. Current research indicates that merely administering simple solutions is inefficient and may limit therapeutic success. While many

therapies can be delivered to some degree without carrier molecules or significant modification, a growing body of research has indicated several methods of improving the safety and efficacy of this administration route, such as nasal permeability enhancers, gelling agents, or nanocarrier formulations.The various new technology uses in development of nasal drug delivery dosage forms are discussed. The various dosage forms are vesicular carriers (liposome, noisome), nanostructured particles, prodrugs, *in situ* gelling system with special attention to *in vivo* studies.

Keywords: Nasal Drug, Carrier, In-Situ Gel, Nasal Patch.

21. NIOSOMES AS A NOVEL DRUG DELIVERY SYSTEM

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Abstract: Niosome are non-ionic surfactant vesicles obtained by hydrating mixture of cholesterol and non-ionic surfactants. It can be used as carriers of amphiphilic and lipophilic drug. In niosomes drug delivery system, the medication is encapsulated in a vesicle. Niosomes are biodegradable, biocompatible non-immunogenic and exhibit flexibility in their structural characterization. The main object of this project work is the application of niosome technology is used to treat a number of diseases, niosome have good opportunity in research and beneficial for researcher and pharma industries. Niosome appears to be a well preferred drug delivery system over liposome as niosome being stable and economic also niosomes have great drug delivery potential for targeted delivery of anti-cancer, anti-infective agents. Drug delivery potential of niosome can enhances by using novel drug delivery concepts like proniosomes, discomes and

aspasome. Niosomes also serve better aid in diagnostic imaging and as a vaccine adjuvant.Treatment of infectious diseases and immunisation has undergone a revolutionary shift in recent years. Not only a large number of disease-specific biological have been developed, but also emphasis has been made to effectively deliver these biological. Niosomes represent an emerging class of novel vesicular systems. Niosomes are self-assembled vesicles composed primarily of synthetic surfactants and cholesterol. Comprehensive research carried over niosome as a drug carrier. Various drugs are enlisted and tried in niosome surfactant vesicles. Niosomes proved to be a promising drug carrier and has potential to reduce the side effects of drugs and increased therapeutic effectiveness in various diseases.Thus, these areas need further exploration and research so as to bring out or to make for commercially available niosomal preparation.

Keywords: Niosomes, Carrier, Self-Assembled Vesicles, Proniosomes.

22. PHARMACOGENOMICS AND PHARMACOGENETICS

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Abstract: Pharmacogenetics and pharmacogenomics involve the study of the role of inheritance in individual variation in drug response, a phenotype that varies from potentially life-threatening adverse drug reactions to equally serious lack of therapeutic efficacy. This discipline evolved from the convergence of rapid advances in molecular pharmacology and genomics. Originally, pharmacogenetic studies focused on monogenic traits, often involving genetic variation in drug metabolism. However, contemporary studies increasingly involve entire "pathways" encoding proteins that influence both pharmacokinetics—factors that influence the concentration of a drug reaching its target(s)—and pharmacodynamics, the drug target itself, as well as genome-wide approaches. Pharmacogenomics is also increasingly moving across the "translational interface" into the clinic and is being incorporated into the drug development process

and the governmental regulation of that process. However, significant challenges remain to be overcome if pharmacogenetics-pharmacogenomics is to achieve its full potential as a major medical application of genomic science.The approval of new medicines has slowed significantly over the past years. In order to accelerate the development of new compounds, novel approaches in drug development are required. Translational medicine or research, an emerging discipline on the frontier of basic science and medical practice, has the potential to enhance the speed and efficiency of the drug development process through the utilization of pharmacogenetics and pharmacogenomics. The utilization of these methods in the drug development process may therefore identify patient sub-populations that exhibit more effective responses and/or an improved benefit/risk profile upon treatment.

Keywords: Pharmacogenetics, Pharmacogenomics, Translational Interface, Phenotype.

23. POST COVID DIABETES

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Abstract: A novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease 2019 (COVID-19]) is now at global pandemic levels causing significant morbidity and mortality. Patients with diabetes are particularly vulnerate and more likely to get severe complications when infected with this virus. Although the information continues to emerge, here we provide our perspective on initial outcomes observed in hospitalized patients with diabetes and the potential role played by the proinflammatory metabolic state in these patients that promotes fertile ground for the virus inflammatory surge, resulting in severe insulin resistance and severe hyperglycemia. The rapidly evolving renal failure, hypotension, pressor and steroid use, and variable nutritional support further complicates their management. Thus, timely implementation of glucose management protocols addressing these complex scenarios while also following COVID-19-related

trajectories in inflammatory biomarkers and being cognizant of the health care provider exposure may substantially affect morbidity and mortal. people with diabetes have higher risks of various infections. Therefore, these diabetic patients might be at increased risk of COVID-19 and have a poorer prognosis. Up until now, little is known about critical role in the pathogenesis. This study aims to investigate the clinical characteristics of COVID-19 patients with diabetes and secondary hyperglycemia, as well as to explore the purported mechanisms. 80 confirmed COVID-19 subjects were classified into the euglycemia. group, secondary hyperglycemia group, and diabetes group. Severity of COVID-19 was defined based on the diagnostic and treatment guideline for SARS-CoV-2 issued by Chinese National Health Committee. According to the severity of the disease, patients of the mild type and common type were registered as mild cases (patients with minimal symptoms and negative CT findings), while patients of the severe type and critical type were enrolled as severe cases (patients with positive CT findings and different extent of clinical manifestations).

Keywords: Post COVID Diabetes, Insulin Resistance, Hyperglycemia.

24. PRECISION MEDICINE: A NEW ERA FOR TREATMENT

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Abstract: There is great potential for genome sequencing to enhance patient care through improved diagnostic sensitivity and more precise therapeutic targeting. To maximize this potential, genomics strategies that have been developed for genetic discovery — including DNA-sequencing technologies and analysis algorithms — need to be adapted to fit clinical needs. This will require the optimization of alignment algorithms, attention to quality-coverage metrics, tailored solutions for paralogous or low-complexity areas of the genome, and the adoption of consensus standards for variant calling and interpretation. Global sharing of this more accurate genotypic and phenotypic data will accelerate the determination of causality for novel genes or variants. Thus, a deeper understanding of disease will be realized that will allow its targeting with much greater therapeutic precision.Precision medicine describes the definition of disease at a

higher resolution by genomic and other technologies to enable more precise targeting of subgroups of disease with new therapies. Prominent examples include cystic fibrosis and cancer.Clinical genomics exists at the intersection of sequencing-led discovery genetics in population cohorts and historical low-throughput approaches to genetic diagnosis in patients. As a result of the different aims of these two endeavours, technologies and algorithms that have been developed for discovery genomics need to be optimized before application to clinical medicine.Areas of need include the improvement of sequencing technologies. Current short-read approaches are limited in areas of the genome of low complexity (such as repeats), regions of high GC content, regions that are highly polymorphic or that include small-scale (indel) or large-scale (structural variant) disruption of the open reading frame.

Keywords: Precision Medicine, Genetics, Clinical Genomics, Sequencing Technologies.

25. REVIEW ON VETERNARY DRUG DELIVERY SYSTEM

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Abstract: One of the challenges to the success of veterinary pharmacotherapy is the limited number of drugs and dosage forms available exclusively to this market, due to the interspecies variability of animals, such as anatomy, physiology, pharmacokinetics, and pharmacodynamics. For this reason, studies in this area have become a highlight, since they are still scarce in comparison with those on human drug use. To overcome many limitations related to the bioavailability, efficacy, and safety of pharmacotherapy in animals, especially livestock and domestic animals, polymers-based drug delivery systems are promising tools if they guarantee greater selectivity and less toxicity in dosage forms. In addition, these tools may be developed according to the great interspecies variability. To contribute to these discussions, this paper provides an updated review of the major polymer-based drug delivery systems projected for

veterinary use. Traditional and innovative drug delivery systems based on polymers are presented, with an emphasis on films, microparticles, micelles, nanogels, nanoparticles, tablets, implants and hydrogel-based drug delivery systems. We discuss important concepts for the veterinarian about the mechanisms of drug release and, for the pharmacist, the advantages in the development of pharmaceutical forms for the animal population. Finally, challenges and opportunities are presented in the field of pharmaceutical dosage forms for veterinary use in response to the interests of the pharmaceutical industry.

Keywords: Veterinary, Hydrogel-Based Drug Delivery Systems, Pharmacotherapy in Animals.

26. ROLE OF FUNCTIONALISED GUM IN SOLID DISPERSION OF AN ANTIBIOTIC DRUG

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Abstract: Solid dispersions have attracted considerable interest as an efficient means of improving the dissolution rate and hence the bioavailability of a range of poorly water-soluble drugs. Solid dispersions of poorly water-soluble drugs with water-soluble carriers have been reduced the incidence of these problems and enhanced dissolution. Since a solid dispersion is basically a drug–polymer two-component system, the drug–polymer interaction and performance.Poor water solubility is one of the major drawbacks for the various types of drugs and various approaches have been introduced for the enhancement of solubility of such drugs. The solubility behaviour of drugs is one of the most challenging aspects for formulation development. Solid dispersions are one of the most promising

strategies to improve the oral bioavailability of poorly aqueous soluble drugs by reducing drug particle size to the absolute minimum, increasing surface area and hence improving drug wettability, bioavailability may be significantly improved. Solid dispersions are generally prepared with a drug which is having poor aqueous solubility and with a water-soluble hydrophilic carrier. This project work reviews the various preparation techniques for solid dispersion and compiles some of the recent technology transfers. The different types of solid dispersions based on the molecular arrangement have been highlighted. Some of the practical aspects to be considered for the preparation of solid dispersions, such as selection of carrier and methods of physicochemical characterization, along with an insight into the molecular arrangement of drugs in solid dispersions are also discussed. Finally, an in-depth rationale for limited commercialization of solid dispersions and recent revival has been considered.The focus of this project workon advantages, disadvantages and the method of preparation, and characterization of the solid dispersion.

Keywords: Solid dispersion, poorly soluble drug, carriers, dissolution enhancement.

27. ROLE OF NANOCRYSTALS AND NANOSUSPENSION IN DRUG DELIVERY SYSTEM

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Abstract: Rapid advancement in drug discovery process is leading to a number of potential new drug candidates having excellent drug efficacy but limited aqueous solubility. By virtue of the submicron particle size and distinct physicochemical properties, nanosuspension has the potential ability to tackle many formulation and drug delivery issues typically associated with poorly water and lipid soluble drugs.Nearly 40% of drugs coming to the market nowadays are having poor solvency related issues and 70% molecules in discovery pipeline are in effect fundamentally insoluble in water. Nanocrystals is an unmistakable instrument to tackle the issue identified with poor fluid solvency and helps in improving the bioavailability of various drugs as presented in the literature. The particle size reduction came about into temperamental nanocrystalline system and the phenomenon of

ostwald ripening happens. These techniques are preparing to the improvement of nanosized objects, which can play out multiple technological tasks. There are a few couples of noteworthy benefits of nanocrystal formulations, for example, upgrade oral bioavailability, improved dose proportionality, reduced food effects, appropriateness for administration by all routes and probability of sterile filtration because of diminished particle size range. One of the most adequate preferences of nanocrystals is their wide scope of utilization, for example, ophthalmic delivery, oral delivery, transdermal delivery, pulmonary delivery, intravenous delivery and targeted delivery, especially for tumour and brain. The increment in commercial value of nanocrystals just as the measure of nanocrystal products in the market is picking up more of attention to be utilized as a strategy so as to get commercial advantages. In this project work a brief and accurate precis of nanosuspension is stated with specific spotlight on nanosuspension preparation methodologies, benefits and few major applications of nanosuspensions.

Keywords: Nanocrystal, Nanosuspension, Bioavailability, Solubility, Bottom-up approach, High-pressure homogenization

28. STEM CELL THERAPIES

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Abstract: Stem cell-based therapy, including human pluripotent stem cells (hPSCs) and multipotent mesenchymal stem cells (MSCs), has recently emerged as a key player in regenerative medicine. hPSCs are defined as self-renewable cell types conferring the ability to differentiate into various cellular phenotypes of the human body, including three germ layers. MSCs are multipotent progenitor cells possessing self-renewal ability (limited in vitro) and differentiation potential into mesenchymal lineages, according to the International Society for Cell and Gene Therapy (ISCT). This review provides an update on recent clinical applications using either hPSCs or MSCs derived from bone marrow (BM), adipose tissue (AT), or the umbilical cord (UC) for the treatment of human diseases, including neurological disorders, pulmonary dysfunctions, metabolic/endocrine-related diseases, reproductive disorders, skin burns, and cardiovascular conditions. Moreover,

we discuss our own clinical trial experiences on targeted therapies using MSCs in a clinical setting, and we propose and discuss the MSC tissue origin concept and how MSC origin may contribute to the role of MSCs in downstream applications, with the ultimate objective of facilitating translational research in regenerative medicine into clinical applications. The mechanisms discussed here support the proposed hypothesis that BM-MSCs are potentially good candidates for brain and spinal cord injury treatment, AT-MSCs are potentially good candidates for reproductive disorder treatment and skin regeneration, and UC-MSCs are potentially good candidates for pulmonary disease and acute respiratory distress syndrome treatment.

Keywords: Human pluripotent stem cells (hPSCs), mesenchymal stem cells (MSCs), self-renewal ability.

29. VALIDATEDSPECTROPHOTOMETRIC DETERMINATION OF ACYCLOVIR BY DERIVATIVE METHOD

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Abstract: A derivative spectrophotometric method was validated for quantification of acyclovir in poly (n-butylcyanoacrylate) (PBCA) nanoparticles. Specificity, linearity, precision, accuracy, recovery, detection (LOD) and quantification (LOQ) limits were established for method validation. First-derivative at 252 nm eliminated interferences from nanoparticle ingredients and presented linearity for acyclovir concentrations ranging from 5to 30.0 μg/mL (r = 0.9982). Precision and accuracy data demonstrated good reproducibility. Recovery ranged from 99.1 to 100.01. Thus, the proposed method proved to be easy, low cost, and accurate, and therefore, an useful alternative to quantify acyclovir in nanoparticles. Derivative UV-spectrophotometry is an analytical technique of enormous implication commonly in obtaining mutually qualitative and quantitative in order from spectra that are of unresolved bands, with respect to qualitative and

quantitative analysis, it uses first or higher derivatives of absorbance .Derivative spectroscopy uses first or higher derivatives of absorbance with respect to wavelength for qualitative analysis and for quantification. The concept of derivatizing spectral data was first introduced in the 1950s, when it was shown to have many advantages. However, the technique received little attention primarily because of the complexity of generating derivative spectra using early UV-Visible spectrophotometers. The introduction of microcomputers in the late 1970s made it generally practicable to use mathematical methods to generate derivative spectra quickly, easily and reproducibly. This significantly increased the use of the derivative technique. In this application note we review briefly the mathematics and generation methods of derivative spectroscopy. We illustrate the features and applications using computer-generated examples.

Keywords: Acyclovir; Derivative Spectrophotometry; Validation

30. A REVIEW ON POST COVID DIABETES

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Abstract: The raging COVID-19 pandemic is in its third year of global impact. The SARS CoV 2 virus has a high rate of spread, protean manifestations, and a high morbidity and mortality in individuals with predisposing risk factors. The pathophysiologic mechanisms involve a heightened systemic inflammatory state, cardiometabolic derangements, and varying degrees of glucose intolerance. The latter can be evident as significant hyperglycemia leading to new-onset diabetes or worsening of preexisting disease. Unfortunately, the clinical course beyond the acute phase of the illness may persist in the form of a variety of symptoms that together form the so-called "Long COVID" or "Post-COVID Syndrome". It is thought that a chronic, low-grade inflammatory and immunologic state persists during this phase, which may last for weeks or months. Although numerous insights have been

gained into COVID-related hyperglycemia and diabetes, its prediction, course, and management remain to be fully elucidated.

Keywords: COVID-19, SARS CoV-2 Type 2 diabetes.

31. STABILITY INDICATING ANALYTICAL METHOD DEVELOPMENT AND VALIDATION OF ANTIVIRAL DRUG BY USING UV TECHNIQUES

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Abstract: A stability-indicating UV/Vis spectrophotometric method was developed and validated for estimation ofDolutegravir and Lamivadin in bulk drug mixture The proposed method utilized a UV-Visible Spectrophotometer (Double Beam) using 1.0 cm quartz cells and all determinations were made at a wavelength of 257 and 279nm for Dolutegravir and Lamivadinrespectively in distilled water. Experiments were designed for determining linearity, limit of detection and quantitation, accuracy, precision and specificity of this analytical method as per the International Organization for Standardization guidelines. The drug substance was exposed to thermal, photolytic, hydrolytic, and oxidative stress conditions, and the stressed samples were analyzed using the proposed method

to demonstrate the specificity of the method. The proposed method was found to be linear in the concentration ranges from 1-9 μg/ml and 2-18 μg/ml with the linear correlation coefficient of R2= 0.998 and 0.999for Dolutegravir and Lamivadin.The mean recoveries were 99.90 to 99.39 for Dolutegravir and LamivadinAlthough the degradation products of stressed condition had not been identified, the method had been able to detect the changes due to stress condition. The stated method can be used as stability indicating method with high degree of linearity, accuracy and precision for assay of diazepam in routine pharmaceutical analysis of tablets

Keywords: Dolutegravir, Lamivadin, Spectrophotometry, Stability, Validation

32. A REVIEW ON PSYCHLOGICAL DISORDER PHOBIA

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Abstract: Virtual reality (VR) is being used more and more often as a therapeutic tool in psychology or psychiatry. In recent years, VR interventions appear more extensively also in disorders such as depression, anxiety and phobia. However, there has yet to be a comprehensive synthesis and critical review of the literature to identify future directions to advance the field in this area.review of reviews, describe the limitations of existing research, suggest avenues for future research to address gaps in the current literature and provide practical recommendations for incorporating VR into various treatments for psychiatric disorders.Social experiences are an integral part of normative development for youth while social functioning difficulties may place them at risk for maladjustment with significant impairment in almost all aspects of daily life as work, studies and relationships .In addition, there are non-specific causes reported in individuals with anxiety disorders as family history; being

female gender, middle age, single, separated, or widowed, heritability rate of 30%-50% also documented, low social class, stressful life event as or sexual harassment or maltreatment, physical punishment in childhood, and harsh parenting behavior in childhood.Moreover, behavioral inhibition trait identifiable in early childhood appears to increase risk of social phobia among children and adults .

Keywords: Psychology, Virtual Reality, Head-Mounted Display, Mental Health.

33. A REVIEW ON NUCLEAR MAGNETIC RESONANCE AND MASS SPECTROSCOPIC APPROCHES

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Abstract: The high resolution nuclear magnetic resonance (NMR) spectroscopy and mass spectrometry (MS) is compared and combined with multivariate statistics that further drives the field of metabolomics. The complementary analytical features of NMR and MS increases the opportunities for both the methods to create more comprehensive metabolic profiling. The high sensitivity of MS makes it an important method for measuring metabolites in complex biosamples. The MS methods allows for reliable metabolite identification. Current challenges for MS-based metabolomics include the development of more robust methods for chromatographic separation, data reduction methods, and reduction of matrix effects including ion suppression. Compared to MS, The NMR spectroscopy yields relatively low-sensitivity measurements. NMR based metabolic profiling is considered to be performed successfully, as the

method is highly quantitative and reproducible.MR is considered to be one of the least sensitive methods among the various spectroscopic techniques available to date. The first on-line HPLC-NMR coupled analysis was carried out using super conducting magnets. There are various NMR probes that can be used for increasing the efficiency of LC-NMR. This review explains the balancing of both LC-NMR for attaining the sensitivity and accuracy of both the techniques. However new upcoming challenges in the future can be solved by using this technique, due to the development of the new cryogenic LC-NMR probes which coupled with the recent interface enhancement and higher magnetic field strengths NMR has become one of the most powerful and versatile spectroscopic techniques for the analysis of bio-macromolecules, allowing characterization of bio-macromolecules and their complexes. Applications in natural product, combinatorial chemistry and drug metabolism studies are reviewed.

Keywords: NMR, Mass Spectrometry, Analysis

34. A REVIEW ON STUDY OF SWINE FLU

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Swine flu, also called Hog or Pig Flu, is an infection caused by any one of the several types of Swine influenza virus (SIV) which is common throughout pig population world wide. The term "influenza" derived from Italian word" influence" was coined in 1357 AD as the disease was thought to be caused by influence of stars. India has had over 1,000 confirmed cases of swine flu so far that's roughly one case per every million people in the nation. The first case of death had its epicenter in Pune. Schools and Colleges were closed and all were running to the nearby clinics to buy mask, where the price of mask had a excitation all over the nation. From the normal cost of Rs.5 or 10 it went to Rs.100 to 150. H1N1 influenza or swine flu is a contagious disease that is caused by the influenza virus. Infection with the H1N1 influenza virus can result in severe illness and lifethreatening complications. Symptoms of H1N1 flu are similar to those of the common flu and scientists are actively studying the situation to better understand its range of symptoms and how it is spread.Swine

flu or H1N1 influenza is a communicable disorder this is end result of the influenza virus. It is a disorder of pigs that can, in rare cases, be surpassed to human beings.**1** It is a quite contagious respiratory disorder as a result of certainly one of many influenza A viruses. The sickness is spread among pigs with the aid of direct and indirect contact, aerosols and from pigs which might be infected however do now not have signs and symptoms. In many elements of the world, pigs are vaccinated against swine flu.

Keywords: Swine Flu, H1N1 Influenza, Life-Threatening, Common Flu.

35. A REVIEW ON HYPERCAROTEMEIA

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Abstract: Hypercarotenemia is diagnosed by yellowing of skin. The present study was carried out to study the carotenoids, their metabolites and the vitamin A levels in hypercarotenemics on reporting, changes in serum carotenoids following cessation of feeding carotenoid-bearing foods, and to determine the carotenoids in stools of hypercarotenemics and non-hypercarotenemics.

Hypercarotenemic subjects (n = 35) were tested on reporting for a 2-month to 3-month period. Feces from hypercarotenemics (n = 5) and non-hypercarotenemics (n = 8) were extracted and subjected to reverse phase-high-performance liquid chromatography. A questionnaire was administered to parents (n = 35) of these hypercarotenemic children. The serum α- and β carotenoids varied from 119 g/dl to trace and from 149 g/dl to trace respectively, with the monohydroxy metabolites varying from 214 g/dl to nondetectable and polyhydroxy metabolites from 823 g/dl to 7.0 g/dl. Longitudinal studies

indicated that serum carotenoid levels declined while vitamin A levels were maintained. α-Carotenes and β-carotenes were not detected in the feces of hypercarotenemics but were present in non-hypercarotenemics.Anorexia nervosa (AN) can co-occur with hypercarotenemia, a clinical condition characterized by elevated β-carotene in plasma and skin tissue. Carotenoids have known anti-obesogenic effects in adipocyte biology. Thus, carotenoids may potentially play a retarding role in weight gain during the recovery of AN patients. This study evaluated the plasma carotenoid profile and subcutaneous adipose tissue (SAT) in a cohort of AN patients and normal weight (NW) controls.

Keywords: Hypercarotenemia, Carotene, Hypercarotenemics

36. A REVIEW ON MITOCHONDRIAL TARDATED DRUG DELIVERY SYSTEM

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Abstract: Mitochondria are one type of the major organelles in the cell, participating in a variety of important physiological and biochemical processes, such as tricarboxylic acid cycle, fatty acid metabolism and oxidative phosphorylation. Meanwhile, it also happens to be the key regulator of apoptosis by triggering the complex cell-death processes through a variety of mechanisms. Since it plays a pivotal role in cell-death, a mitochondria-targeted treatment strategy could be promising for cancer therapy. In this comprehensive review, we focused on the mechanisms of mitochondrial targeting and a variety of strategies to realize the purpose of mitochondrial targeting, including that based on the use of lipophilic cations, and mitochondrial targeting signal peptides (MTS) as well as cell-penetrating peptides (CPPs). Then on this basis we present some several developed strategies for multifunctional mitochondria-targeted agents so as to achieve the good anti-cancer therapeutic effects.Cancer is still

considered one of the hardest diseases to overcome because the number of cancer patients is steadily increasing. The mortality rate of cancer patients is also increasing , even though various anticancer drugs and therapies have been extensively developed over the past decades. One of the major reasons comes from the fact that cancer is diverse: there are many types of cancer, and various cancers in the same organ can be generated by several different causes. Moreover, as faces are different, cancers are also different .why we are still struggling to fight cancers. Therefore, to overcome and prevent diverse and complicated cancers, many researchers are trying to understand and explore cancers through various perspectives. In particular, since Otto Heinrich Warburg found that cancer maintains cell growth by changing ATP production mechanisms from oxidative phosphorylation (OXPHOS) to relatively inefficient glycolysis even in the presence of abundant oxygen [3], interest in mitochondria has increased.

Keywords: Mitochondria, Multi-Level, Targeting, Peptide.

37. A REVIEW ON PSYCHLOGICAL DISORDER PHOBIA

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Abstract: Virtual reality is being used more and more often as a therapeutic tool in psychology or psychiatry. In recent years, VR interventions appear more extensively also in disorders such as depression, anxiety and phobia. However, there has yet to be a comprehensive synthesis and critical review of the literature to identify future directions to advance the field in this area. review of reviews, describe the limitations of existing research, suggest avenues for future research to address gaps in the current literature and provide practical recommendations for incorporating VR into various treatments for psychiatric disorderst. The global prevalence of social phobia ranges from 8 to 12% with multifactorial causes involving genetics, neurobiology, the fetal environment, and the postnatal environment. The reported risk factors in patients with social phobia are family history of anxiety or mood disorder; heritability, female gender, middle age, being single, separated, or widowed, low socioeconomic status or low

income, stressful life event or trauma as maltreatment or sexual abuse, physical punishment in childhood, overprotective or harsh parenting style in childhood. Individuals with social phobia experience higher rates of unemployment, more missed hours of work, and reduced work performance relative to individuals without social phobia.

Keywords: Virtual reality Psychology, Mental health, Head-mounted display.

38. A REVIEW ON NEW APPROACH AND TRADE IN MICRIEMUSION

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Abstract: Microemulsions are excellent candidates as potential drug delivery systems because of their improved drug solubilization, long shelf life, and ease of preparation and administration. The formulation of microemulsion for pharmaceutical use requires a thorough understanding of the properties uses, and limitations of the microemulsion. Three distinct microemulsions– oil external, water external and middle phase can be used for drug delivery, depending upon the type of drug delivery upon the type of drug and the site of action. In this article, Since the term micro emulsion' was first coined almost fifty years ago to describe clear, isotropic, thermodynamically stable systems composed of oil, water, surfactant and surfactant, numerous and varied reports of the applications ofmicroemulsions have appeared in the literature. Reports of the use of microemulsions in separation science began to

appear in the literature in the early 1990s when they were first used as mobile phases for HPLC and as carrier electrolytes for CE separations, particularly for pharmaceutical applications.This present review gives an introduction to microemulsion systems and explains why these systems are interesting for nanoparticle preparation, especially for catalytic applications. For other types of microemulsion applications, the reader should consult.Different examples are reported in this review showing the wide range of applications for this method in the field of catalysis

Keywords: Micelle, Thermodynamics, Co-solvents, Transparent, Coarse.

39. DISSOLUTION MEDIA DEVELOPMENT FOR PARACETOMOL AND CHLOROXAZONE

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Abstract: The present work concerns with development of dissolution media forParacetamol and Chlorzoxazone in combine tablets dosage form using spectrophotometric method. 0.1M HCl (pH 1.0, 900 mL) was used as dissolution medium, using a paddle apparatus, stirring rate was 50 rpm. The percent drug release was determined by UV spectrophotometric method the wavelength selected for analysis are 242.80 nm for Paracetamol and 279.80 nm for Chlorzoxazone from results it can be concluded that the method developed consists in an efficient alternative for assay of this tablets combinationParacetamol release within 60 min (99.55) and Chloroxazonerelease within 60 min (99.08) . Drug dissolution profiles are increasingly used to evaluate drug release characteristics of pharmaceutical products. Discriminatory dissolution profiles are highly desirable for differentiating between products having

differences in pharmaceutical attributes (formulation and/or manufacturing processes differences) that may reflect corresponding differences in vivo.The aim of the present work was to improve rate of dissolution and processing parameters of BCS class II drug, chlorzoxazone using cogrinding technique in the presence of different excipients as a carrier.ajority of crystalline Active Pharmaceutical Ingredients have poor aqueous solubility due to which rate of drug dissolution becomes very lowCogrinding can be successfully utilized to improve the rate of dissolution of poorly water soluble drugs and hence bioavailability.

Keywords: Paracetomol, Chloroxazone, Dissolution Media Development.

40. APPLICATION OF PHARMCOKINETICS

Miss Kadam Vaishali, Miss Pawale Manisha

Abstract: Pharmacokinetics is currently defined as the study of the time course of drug absorption, distribution, metabolism, and excretion. Clinical pharmacokinetics is the application of pharmacokinetic principles to the safe and effective therapeutic management of drugs in an individual patient. Pharmacokinetic is proposed to study the absorption, the distribution, the biotransformation and the elimination of drug in man and animal. A single kinetic profile may be well summarized by Cmax,Tmax,$t_{1/2}$ and AUC having more than one profile,8 parameter at least, the mean standard deviation of these parameters may well summarized the drug kinetic in the whole population. A more carefully description of the data can be obtained interpolating and extrapolating the drug concentration with some mathematical functions may be used to reduced all the data is a small set of parameters or to verify if the hypothesis in corporate in the function are confirmed by the observations. The function used to interpolate and reduced the pharmacokinetic data are the multiple exponential functions and

reference model are the compartmental models whose solutions are just the multiexponantial function. Using models new meaningful pharmacokinetic parameter may be defined which can be used to find relationship between the drug kinetic profile and the physiological process which drive the drug absorption, distribution and elimination.e.g. Compartmental model allow to define easily the clearance which is dependent on the drug elimination process or the volume of distribution which depend on drug distribution tissue. Models provide also an easy way to get estimate of drug absorption after extra vascular drug administration. Model building is a complex multistep process where experiment by experiment and stimulation by stimulation, new hypothesis are proven and disproven through a continues interaction between the experimental and the computer.

Keywords: Pharmacokinetics, Cmax, Tmax, $t_{1/2}$, AUC

41. NANOROBOTS AND ITS APPLICATION IN MEDICINE

Miss Kodli Pooja, Miss Waghmode Mohini

Abstract: The purpose of this paper is to review the phenomenon of nanorobotics at a might apply to micro and nano scale robotics is called nanorobotics. These miniature robots have unique advantages such as accessing to unprecedented and small areas, increased flexibility. Functionality and robustness, and being low cost, adaptive and distributed. Nanorobotics is the technology of creating machines or robots at or close to the microscopic scale of a nanometer (10-9 meters). As no artificial non-biological nanorobots have yet been created, they remain a hypothetical concept. The names nanobots, nanoids, nanites or nanomites have also been used to describe this hypothetical devices. In this paper is to review some applications of the nanorobotics as like micro robotics, emerging drug delivery application, health care, bio- medical application, cancer therapy. Brain Aneurysm, communication system, and new future nano technologies, etc. Nano-robots are the robots that are simply known as that controllable machine at the nano (10-9) meter or molecular scale, composed of nano-

components. More specifically, nano robotics refers to the still largely hypothetical nanotechnology engineering discipline of designing and building nano robots. Even though the field of nano robotics is fundamentally different from that of the macro robots due to the differences in scale and material, there are many similarities in design and control techniques that eventually could be projected and applied. Due to the modern scientific capabilities, it has become possible to attempt the creation of nano robotic devices and interface them with the macro world for control. There are countless such machines which exist in nature and there is an opportunity to build more of them by mimicking nature. Nowadays these nano robots play a vital role in the field of Bio Medicine. Especially in the treatment of cancer. Cerebral Aneurysm, kidney stones removal, also to remove the defected part in our DNA structure and some other treatments that has the greatest aid to save human lives. This paper guides to the recent research on nano robots in the Bio medical applications.

Keywords: Nanorobotics, Cerebral Aneurysm, Kidney Stones, Nanometer.

42. TRADITIONAL HERBAL TREATMENT METHOD OF KIDNEY STONE

Mr. Jameel Ahmed, Mr. Suhail Farooq Peerzada

Abstract: Herbal treatments are becoming increasingly popular, and are often used for dermatological conditions. Thus dermatologists should know about the r potential to cause adverse events. This review is aimed this area in a semi systematic fashion. Some agents, particularly Chinese herbal reams, have been shown repeatedly to be adulterated with corticosteroids. Virtually all herbal remedies can cause allergic reactions and sever be responsible for photosensitization. Some herbal medicines, in par Ayurvedic remedies, contain arsenic or mercury that can produce typical skin lesions. Other popular remedies that can cause dermatological side effects include St John's Wort, kava, aloe Vera, eucalyptus, camphor, henna and finally, there are some herbal treatments used specifically for conditions. The greatest risk factor for kidney stones is making less than one liter of urine per day. Therefore, kidney stones are common in premature infants who have kidney problems. Kidney stones are most likely to occur between

the age group of 20 and 40. Different factors can increase a risk of developing a stone in the kidney. Asians are more likely to have kidney stones than African s and Americans. Sex also plays a role, with more men than women developing kidney stones, according to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). A history of kidney stones can increase your risk, as does a family history of kidney stones. Other risk factors include Dehydration, Obesity, High-protein, salt, or glucose diet, hyper parathyroid condition, and Gastric bypass surgery, inflammatory bowel diseases that increase calcium absorption taking medications such as diuretics, anti-seizure drugs, and calcium-based antacids.

Keywords: NIDDK, Herbal Treatments, Kidney Stones

43. REVIEW ARTICLE ON AZADIRACHTA INDICA

Miss P.M.Kshirsagar, Mr. Santosh Jadhav

Abstract: Global health and medical practice seek to merge alternative medicine with evidence-based medicine for a better understanding of the metabolic process and its effects in the human body. An example is the use of complementary medicine like phytotherapy. Azadirachta indica (Neem), a tree originally from India and Myanmar, called by many "The village pharmacy" or "Divine tree" because of its many health properties. In recent times, Neem-derived extracts have been shown to work from anywhere from insect repellent, to supplements to lower inflammation, diabetic control, and even to combat cancer. Neem (Azadirachta indica) belonging to Maliaceae family is very important medicinal plant. Neem is used different medicinal system; Ayurveda, Unani, Homeopathic medicines against various diseases. Each part of neem tree which has some medical property which act on various diseases.The use of traditional medicine and medicinal plants in most developing countries, as a normative basis for the maintenance of good health, has been widely observed. In the last

century, roughly 121 pharmaceutical products have been discovered based on the information obtained from the traditional healers. Chemical principles from natural sources have become much simpler and have contributed significantly to the development of new drugs from medicinal plants. And because of these facts the world market for plant-derived chemicals - pharmaceuticals, fragrances, flavours, and colour ingredients, alone exceeds several billion dollars per year. Azadirachta indica is one of the most revenue releasing plant grown in India because of several phytoconstituents present in it and also due to a number of pharmacological activities associated with it. The present review highlights a literature on taxonomical, botanical, phytoconstituents, and pharmacological discussion on Azadirachta indica leaves.

Keywords: Homeopathic Medicines, Azadirachta Indica, Maliaceae.

44. RECENT ADVANCES IN OCULAR DRUG DELIVERY SYSTEM

Mr.S.B Jadhav, Mr.Akshay Suryawanshi

Abstract: Amongst the various routes of drug delivery, the field of ocular drug delivery is one of the most interesting and challenging endeavors facing the pharmaceutical scientist. Recent research has focused on the characteristic advantages and limitations of the various drug delivery systems, and further research will be required before the ideal system can be developed. Administration of drugs to the ocular region with conventional delivery systems leads to short contact time of the formulations on the epithelium and fast elimination of drugs. This transient residence time involves poor bioavailability of drugs which can be explained by the tear production, non-productive absorption and impermeability of corneal epithelium. Transport of drugs applied by traditional dosage forms is restricted to the eye, and therapeutic drug concentrations in the target tissues are not maintained for a long duration since the eyes are protected by a unique anatomy and physiology. For the treatment of the anterior segment of the eye, various droppable products to prolong the

retention time on the ocular surface have been introduced in the market. On the other hand, direct intravitreal implants, using biodegradable or non-biodegradable polymer have been widely investigated for the treatment of chronic vitreoretinal diseases. There is urgent need to develop ocular drug delivery systems which provide controlled release for the treatment of chronic diseases, and increase patient's and doctor's convenience to reduce the dosing frequency and invasive treatment. In this article, progress of ocular drug delivery systems under clinical trials and in late experimental stage is reviewed.

Keywords: Ocular Drug Delivery, Vitreoretinal Diseases, Direct Intravitreal Implants, Conventional Delivery Systems.

45. SCHIZOPHRENIA AS A DISORDER OF NEURO DEVELOPMENT

Ms. Kodli Pooja Mr.Sayed Ajas Tajuddin

Abstract: Schizophrenia is a neurodevelopmental disorder featuring complex aberrations in the structure, wiring, and chemistry of multiple neuronal systems. The abnormal developmental trajectory of the brain appears to be established during gestation, long before clinical symptoms of the disease appear in early adult life. Many genes are associated with schizophrenia, however, altered expression of no one gene has been shown to be present in a majority of schizophrenia patients. How does altered expression of such a variety of genes lead to the complex set of abnormalities observed in the schizophrenic brain? We hypothesize that the protein products of these genes converge on common neurodevelopmental pathways that affect the development of multiple neural circuits and neurotransmitter systems. One such neurodevelopmental pathway is Integrative Nuclear FGFR1 Signaling (INFS). INFS integrates diverse neurogenic signals that direct the postmitotic development of embryonic stem cells, neural progenitors and immature

neurons, by direct gene reprogramming. Additionally, FGFR1 and its partner proteins link multiple upstream pathways in which schizophrenia-linked genes are known to function and interact directly with those genes. A thfgfr1(tk-) transgenic mouse with impaired FGF receptor signaling establishes a number of important characteristics that mimic human schizophrenia — a neurodevelopmental origin, anatomical abnormalities at birth, a delayed onset of behavioral symptoms, deficits across multiple domains of the disorder and symptom improvement with typical and atypical antipsychotics, 5-HT antagonists, and nicotinic receptor agonists. Our research suggests that altered FGF receptor signaling plays a central role in the developmental abnormalities underlying schizophrenia and that nicotinic agonists are an effective class of compounds for the treatment of schizophrenia.

Keywords: Schizophrenia, Neurodevelopmental Pathways, Postmitotic Development.

46. ASTHMA

Mr. Sawale P.V, Mr. Vishal Kadam

Abstract: To conduct a review about the herbal remedies which are available and that can reduce the severity of asthma. To determine the availability of ayurvedic herbs and their effectiveness in treating asthma and their safety profile. Asthma – a chronic condition that causes inflammation and narrowing of bronchial tubes. If people with asthma are exposed to a substance to which they are sensitive or a situation that changes their regular breathing patterns, the symptoms can become more severe. Asthma symptoms affect 19 million adults and 7 million children. Although there is no cure for asthma, effective treatments are available. Prevention of symptoms is the best strategy. A person with asthma should know what situation trigger an attack and avoid them whenever possible. There are many advantages for herbal medicine that can cure asthma. The studies have showed and proved many herbs or traditional methods like CAM (complementary and alternative medicines have showed significant increase in effect of treating the asthma. Therefore it is necessary for all Clinicians to be aware of high prevalence of herbal and ayurvedic interventions

available for asthmatics other than using contemporary methods which include the use of steroids and bronchodilators that will give adverse side effects. Current treatment options for conditions aim to alleviate symptoms, improve patient quality of life and prevent disease progression rather than cure the underlying condition itself. Treatments available to patients include anti-inflammatory therapies, bronchodilators and inhaled corticosteroids. While these treatments have been deemed effective at alleviating disease symptoms and exacerbations they are not without their limitations. Overuse of some therapies can induce adverse effects in some patients such as increased risk of developing pneumonia and cardiac co-morbidities. Along with the risks of side effects not all patients will respond to the current treatment options and therefore there is an unmet need for additional or alternative treatments for asthma. One such area showing good promise in providing an alternative or add-on therapy is that of phytomedicine. Phytomedicine is defined as a plant-based traditional medical practice that uses various plant materials in modalities considered both preventive and therapeutic. This review focuses on recent human clinical trials using plant-based medicines for the treatment of asthma.

Keywords: Asthma, Phytomedicine, severity, Ayurvedic herbs, Traditional Indian herbs, Anti-asthma Herbal Medicine Intervention (ASHMI).

47. AYURVEDIC HERBAL DRUG USED IN THE TREATMENT OF ASTHMA

Miss Megha Gajale, Miss Akanksha Dabhade

Abstract: Asthma is the most common chronic disease in modern society and there is increasing evidence to suggest that its incidence and severity are increasing. There is high prevalence of usage of complementary medicine for asthma. Herbal preparations have been cited as the third most popular complementary treatment modality by British asthma sufferers. This study was undertaken to determine if there is any evidence for the clinical efficacy of herbal preparation for the treatment of asthma. In traditional systems of medicine, many plants have been documented to be useful for the treatment of various respiratory disorders including asthma. In the last two decades the use of medicinal plants and natural products has been increased dramatically all over the world. Current synthetic drugs used in pharmacotherapy of asthma are unable to act at all the stages and targets of asthma. However some herbal alternatives employed in asthma are proven to provide symptomatic relief and assist in the inhibition of disease progression also. The herbs have shown

interesting results in various target specific biological activities such as bronchodilation, mast cell stabilization, anti-anaphylactic, anti-inflammatory, anti-spasmodic, anti-allergic, immunomodulatory and inhibition of mediators such as leukotrienes, lipoxygenase, cyclooxygenase, platelet activating, phosphodiesterase and cytokine, in the treatment of asthma. This paper is an attempt to classify these pharmacological and clinical findings based on their possible mechanism of action reported. It also signifies the need for development of polyherbal formulations containing various herbs acting at particular sites of the pathophysiological cascade of asthma for prophylaxis as well as for the treatment of asthma.

Keywords: Asthma, Herbal Formulation, Pharmacotherapy.

48. USE OF UV-VISIBLE SPECTROSCOPIC METHOD FOR THE ASSAY OF DRUG IN THEIR FORMULATION

Mr.Mohammad Zameeruddin,
Mr.Farooqui Fayzan Ahmed, Ms Ghandge Pallavi

Abstract: A rapid, simple, accurate, and economical least time consuming spectrophotometric method has been developed for the assay of atorvastatin. The assay is based on the ultraviolet UV absorbance maxima at about 244nm wavelength of atorvastatin using methanol as solvent. A sample of drug was dissolved in methanol to produce a solution containing atorvastatin. Similarly, a sample of ground tablets of different brand were extracted with methanol and diluted with the same methanol. The absorbance of sample preparation was measured at 244 nm against the solvent blank and the assay was determined by comparing with the absorbance of available brand. The method can be applied for the routine QC quantitation of atorvastatin in tablet formulation and active. A new, simple, precise, rapid and low-cost spectrophotometric method for atorvastatin determination in pharmaceutical preparations is

described. This method is based on the complexation reaction of Absorbance of the resulting is measured at 244 nm. Beer's Law is obeyed in a concentration range of 2 - 10 μg ml-1 methyldopa with an excellent correlation coefficient (r = 0.999). No interference was observed from common excipients in formulations. The results show a simple, accurate, fast and readily applied method to the determination of methyldopa in pharmaceutical products. The analytical results obtained for these products by the proposed method are in agreement with those of the Brazilian Pharmacopoeia procedure at 95% confidence level. A novel, safe and sensitive method of **spectrophotometric** estimation in UV-region has been developed for the assay of atorvastatin in its formulation. The method have been developed and validated for the assay of atorvastatin using water as solvent. Which does not shows any interference in **spectrophotometric** estimations. All the parameters of the analysis were chosen according to ICH [Q2 (R1)] guideline and validated statistically using RSD and %RSD along with neat chromate grams. The method has been successfully applied to the determination of atorvastatin in pharmaceutical preparations. The method can be applied for the routine QC

quantitation of atorvastatin in tablet formulation and active

Keyword: Developed, Validated, Parameters, ICH [Q2 (R1)], Atorvastatin, UV- Spectroscopy.

49. USE OF UV-VISIBLE SPECTROSCOPIC METHOD FOR THE ASSAY OF DRUG IN THEIR FORMULATION

Mr.Mohammad Zameeruddin, Mr.Gore Narendra, Ms Gore Tejaswini, Mr Jaiswal Shubham

Abstract: A new, simple, precise, rapid and low-cost spectrophotometric method for methyldopa determination in pharmaceutical preparations is described. This method is based on the complexation reaction of methyldopa with molybdate. Absorbance of the resulting is measured at 280 nm. Beer's Law is obeyed in a concentration range of 2 - 10 μg ml-1 methyldopa with an excellent correlation coefficient (r = 0.999). No interference was observed from common excipients in formulations. The results show a simple, accurate, fast and readily applied method to the determination of methyldopa in pharmaceutical products. The analytical results obtained for these products by the proposed method are in agreement with those of the Brazilian Pharmacopoeia procedure at 95% confidence level. A novel, safe and sensitive method of **spectrophotometric** estimation in UV-region has been developed for the assay of

Paracetamol in its tablet formulation. The method have been developed and validated for the assay of methyldopa using water as solvent. Which does not shows any interference in **spectrophotometric** estimations. All the parameters of the analysis were chosen according to ICH [Q2 (R1)] guideline and validated statistically using RSD and %RSD along with neat chromate grams. The method has been successfully applied to the determination of Methyldopa in pharmaceutical preparations.

Keyword: Spectrophotometric, Developed, Validated, Parameters, ICH [Q2 (R1)]

50. WHO GUIDELINES ON SAFETY MONITORING OF HERBAL MEDICINE IN PHARMACOVIGILANCE SYSTEM

Mr. Jameel Ahmed, Kamble Sidhant

Abstract: Pharmacovigilance is essential for developing reliable information on the safety of herbal medicine as used in Europe and the US. The existing system were developed for synthetic medicine and require some modification to address the specific differences of medicinal herbs. Traditional medicine from many different cultures is used in Europe and the US which adds to the complexities and difficulties of even basic questions such as herbs naming system and chemical variability. Allied to this also is the perception that a natural or herbal product must be safe simply because it is not synthetic which means that the safety element of monitoring for such medicine can be overlooked because of the tag associated with such products. Currently, a majority of the adverse events related to the use of herbal products and herbal medicines that are reported are attributable either to poor product quality or to improper use. Inadequate regulatory measures, weak quality control systems, and largely uncontrolled distribution channels

(including mail order and Internet sales) may have been contributing to the occurrence of such events. In order to expand the knowledge about genuine adverse reactions to herbal medicines, and to avoid wasting scarce resources for identifying and analyzing adverse events, events resulting from such situations will need to be reduced or eliminated. Member States of the World Health Organization (WHO) are therefore encouraged to strengthen national regulation, registration and quality assurance and control of herbal medicines. In addition, the national health authorities should give greater attention to consumer education and to qualified practice in the provision of herbal medicines.

Keywords: Guidelines, Herbal Medicines, Pharmacovigilance, Regulatory, World Health Organization.

51. BLOCKCHAIN

Syed Ansar Ahmd, Miss Supriya Madhavrao Shinde

Abstract: Data management is critical for the pharmaceutical industry a new technology. called blockchain, may provide improved security and transparency for a number of different pharmaceutical activities. Blockchain offers a way to respond to the Drug Supply Chain Security Act (DSCSA) which the U.S.Congress passed in 2013 to prevent counterfeit, stolen, or contaminated drugs. Blockchain is also being explored for use in keeping records of clinical trials and for research into new pharmaceuticals. While not all of the projects currently being developed may be successful, a blockchain-based Electronic Health Record System should provide improved data security,information sharing, data authentication as well as being more patient centered than what currently exists.Clinical trial data reliability and quality will also improve blockchain integration. The decentralized nature lets the clinical labs use a transparent, immutable data source where it is not possible to hamper the data. clinical trial data is stored in the public blockchain, where you can verify the data whenever needed. It is tamper-proof, and the clinical labs can completely trust

the data to carry out the results of their trials.The pharmaceutical companies can also use the system to convince more patients and help them participate in the trials. More so, pharmaceuticals can also track and trace the data using the tech.

Keywords: Blockchain, Pharmaceutical Supply Chain, Automation, Clinical Trials

52. PREPARARTION AND EVALUATION OF HERBAL HAND WASH

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Mr. Pedgulwar Govind Dattatray
Mr. Ramlod Mayuresh Maroti
Mr. Rathod Madan Ramesh

Abstract: Hand washing is an important practice for healthcare in home and daily life preparations. Herbal based hand wash preparations are the most promising hand wash with natural antimicrobial effect. The present study was aimed to development and standardization of herbal hand wash with natural ingredients. The herbal hand wash containing plant extract and other natural herbal ingredients in different composition of ingredients. Herbal hand wash formulations were further evaluated for some parameters such as odour, colour, PH, viscosity, foam height, foam retention and spreading potential. The quality of hand wash formulation was evaluated by skin irritation test, greasiness, grittiness and homogeneity. The results indicated that all the developed formulation of hand wash was in acceptable limits. The result of

present study proved that the effective herbal hand wash were developed successfully by incorporating the herbal extracts using low cost indigenous technologies for better effect. It is very good attempt to establish the herbal face wash contain extract of orange peel, Tulsi, Reetha powder, Aloevera extract, Rose water, Honey. Herbal hand wash not only moisturized, they also used as a cleanser. Preferably they used for dirty and contaminated hand physiology. It provides numerous essential nutrients to the required for maintaining the healthy hand. Herbal hand wash containing orange peel extract was formulated successfully by using Reetha as a foaming agent.

Keywords: Antimicrobial Effect, Aloevera Extract, Parameters, Reetha.

53. CHROMATOGRAPHY

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Abstract: A precise measurement of drug levels both in a pharmaceutical industry's perspective and health care setup is the need of the hour. Pharmaceutical companies spend extravagantly and also untiringly, day in and day out, to delineate a single successful drug moiety from thousands of lead compounds. In this pursuit, they rely on bio-analytical techniques which could help them in separating the most active elements from the crude mixtures. And also, later on in pre-clinical and clinical testing accurate measurement of drug levels in biological tissues using suitable analytical techniques are indispensable. Moreover, a treating physician depends on drug levels especially for those drugs with narrow therapeutic margin. Though the qualitative and quantitative analytical methods existing today are more sophisticated and complex, they actually originated and evolved from the roots of chromatography. Hence, chromatography still prevails as the most significant analytical method in molecular chemistry despite being primitive. This current indisputable status of chromatography is reflected

by the fact that majority of the present techniques is based on the principle of chromatography. This review focusses on the various types of chromatography, their working principles and applications. There are various types of chromatography like Thin layer chromatography, high performance thin layer chromatography, High performance liquid chromatography, Column chromatography, Gas chromatography, adding mass spectrometry to gas chromatography, Gel filtration chromatography, Ion exchange chromatography, Paper chromatography, affinity chromatography, Supercritical chromatography etc

Keywords: Bio-Analytical Techniques, Biological Tissues, Chromatography

54. URINARY TRACT INFFECTIONS

Mr. Kadam R.K, Sukesh Ganesh Dawale

Abstract: Urinary tract infection (UTI) is the most common infection experienced by humans after respiratory and gastro-intestinal infections, and also the most common cause of both community-acquired and nosocomial infections for patients admitted to hospitals. For better management and prognosis, it is mandatory to know the possible site of infection, whether the infection is uncomplicated or complicated, re-infection or relapse, or treatment failure and its pathogenesis and risk factors. Asymptomatic bacteriuria is common in certain age groups and has different connotationsIt needs to be treated and completely cured in pregnant women and preschool children. Reflux nephropathy in children could result in chronic kidney disease; otherwise, urinary tract infections do not play a major role in the pathogenesis of end-stage renal disease. Symptomatic urinary tract infections occur most commonly in women of child- bearing age. Cystitis predominates, but needs to be distinguished from acute urethral syndrome that affects both sexes and has a different management plan than UTIs. The prostatitis symptoms are

much more common than bacterial prostatic infections The treatment needs to be prolonged in bacterial prostatitis and as cure rates are not very high and relapses are common, the classification of prostatitis needs to be understood. The consensus conference convened by National Institute of Health added two more groups of patients, namely, chronic prostatitis/chronic pelvic pain syndrome and asymptomatic inflammatory prostatitis, in addition to acute and chronic bacterial prostatitis. Although white blood cells in urine signify inflammation, they do not always signify UTI.Imaging studies should be done 3-6 weeks after cure of acute infection to identify abnormalities predisposing to infection or renal damage or which may affect management. Treatment of cystitis in women should be a three-day course and if symptoms are prolonged, then a seven day course of antibiotics should be given. Selected group of patients benefits from low-dose prophylactic therapy.

Keywords: Acute Urethral Syndrome, Bacteriuria, Imaging Studies, Low-Dose Prophylaxis, Urinary Tract Infection, Urine Culture

55. A NOVEL REVIEW ON NATURAL POLYMERS USED IN FAST DISPERSIBLE TABLETS, DISSOLVING FILM & GELS

Mr.Jadhav S.B, Akotkhane Manisha Onkar

Abstract: Any pharmaceutical formulation contains two ingredients one is the active ingredient and other is an excipients. Excipients help in the manufacturing of dosage form and it also improves physicochemical parameters of the dosage form. Polymers play an important role as excipients in any dosage form. They influence drug release and should be compatible, non- toxic, stable, economic etc. They are broadly classified as natural polymers and synthetic polymers. They have wide range of applications so selection of polymer is the main step in designing any dosage form. Nowadays, due to many problems associated with drug release and side effects manufacturers are inclined towards using natural polymers. Natural polymers are basically polysaccharides so they are biocompatible and without any side effects. This review discusses various natural polymers, their advantages over synthetic polymers and role of natural polymers in designing novel drug delivery systems.Natural polymers have more preponderant effects on fast

dissolving tablets than synthetic polymers. Natural polymers are preferred over synthetic polymers as they are non-toxic, facilely available at low cost, utilize in low concentration and are naturally extracted to provide nutritional supplements. The natural super disintegrant exhibit faster drug dissolution and increased bioavailability thereby availing patient compliance. Natural polymers incremented the drug release from the tablet and decremented the dissolution and disintegration time, they are utilize as binders, super disintegrant and diluents. Gel system has emerged as one of the best novel drug delivery system, they helps for the sustained and controlled release of drug, improve patient compliance and comforts. There is high scope for research work on gel system in order to provide advanced technique in drug delivery system.

Keywords: Agar, Cellulose, Chitin, Locust beangum, Starch

56. PREPARARTION AND EVALUATION OF HERBAL FACEWASH

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Abstract: It is more acceptable to believe that naturally remedies are safer than synthetic subject's due to fewer side effects. The global market demands are increasing to the fusion of herbs. Current work of herbal facewash is developmental and evaluation of extracts with facial spray contains peel extract of Tulsi (Ocimum sanctum), leaf extract of Aloevera (aloe barbandensis), leaf extract of Rose (rosa centifolia), powder of reetha (sapindus mucorossi). Although there are some specific local herbal formulas available on the market, we purpose to make pure herbal formulations available without using any artificial ingredient. The plants have been reported in the literature with microorganisms, antioxidants, and anti-inflammatory activity. Formulations was prepared and evaluated for various parameters like colour,

appearance, consistence, washability and pH. It is very good attempt to establish the herbal face wash contain extract of orange peel, Tulsi, Reetha powder, Aloevera extract, Rose water, Honey,. face wash not only moisturized, they also used as a cleanser. Preferably they used for oily and dry skin physiology. It provides numerous essential nutrients to the required for maintaining the normal skin.from the studies it was concluded that the prepared formulation can be effectively used for facial care.Preparation of extract Leaves of Tulsi and Orange peel were kept in hot air oven for drying purpose at 45°C grinded into small pieces by using grinder. Reetha were crushed to make powder. Desired quantities of herbal drugs were weighed and each herb macerated with Rose water in conical flask and then uniform powder granule size obtained by sieving.

Keywords: Naturally Remedies, Reetha Powder, Alovera Exatract

57. ORALLY DISSOLVING STRIPS

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Abstract: Recently, fast dissolving films are gaining interest as an alternative of fast dissolving tablets. The films are designed to dissolve upon contact with a wet surface, such as the tongue, within a few seconds, meaning the consumer can take the product without need for additional liquid. This convenience provides both a marketing advantage and increased patient compliance. As the drug is directly absorbed into systemic circulation, degradation in gastrointestinal tract and first pass effect can be avoided. These points make this formulation most popular and acceptable among pediatric and geriatric patients and patients with fear of choking. Over-the-counter films for pain management and motion sickness are commercialized in the US markets. Many companies are utilizing transdermal drug delivery technology to develop thin film formats. In the present review, recent advancements regarding fast dissolving buccal film formulation and their evaluation parameters are compiled.Fast

dissolving films are the novel approach in oral drug delivery systems. It promises patient compliance especially in case of pediatrics and geriatrics patients. They can also be used when quick action is required. They possess many advantages over conventional dosage form and can also be used in cases of dysphagia, Parkinson's disease, mucositis, or vomiting.Fast dissolving delivery system should have the following properties: High stability, transportability, ease of handling and administration, no special packaging material or processing requirements, no water necessary for application, and a pleasant taste.

Keywords: Fast dissolving films, oral mucosa, permeability, solvent casting, solvent casting and disintegration

58. RESEALED ERYTHROCYTES – A NOVEL DRUG DELIVARY APPROACH

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Abstract: Novel drug delivery systems are one of the widely used delivery systems. In the present scenario, amongst them, "Drug Loaded Erythrocytes" is one of the growing and potential systems for delivery of drugs and enzymes. Erythrocytes are biocompatible, biodegradable, posses long circulation half-life and can be loaded with variety of biologically active substances. Carrier erythrocytes are prepared by collecting blood sample from the organism of interest and separating erythrocytes from plasma. By using various physical and chemical methods the cells are broken and the drug is entrapped into the erythrocytes, finally they are resealed and the resultant carriers are then called "resealed erythrocytes". Surface modification with glutaraldehyde, antibodies, carbohydrates like sialic acid and biotinylation of loaded erythrocytes (biotinylated erythrocytes) is possible to improve their target specificity and to increase their

circulation half-life. Upon reinjection the drug loaded erythrocytes serve as slow circulation depots, targets the drug to the reticuloendothelial system (RES), prevents degradation of loaded drug from inactivation by endogenous chemicals, attain steady state concentration of drug and decrease the side-effects of loaded drug. Nowadays, Nanoerythrosomes based drug delivery systems have excellent potential for clinical application.The number of products based on new drug delivery systems has significantly increased in the past few years and this growth is expected to continue in the near future. The reasons for this increasing interest in drug delivery are due to the increasing need of safe drugs, capable of reaching the target and with minimal side effects. In fact the main problems associate with systemic drug administration is essentially related to the biodistribution of pharmaceuticals throughout the body. To overcomes this problem and improving patient compliance as well as efficiency novel drug delivery through resealed erythrocytes is used now a days. Resealed Erythrocytes (RSE) are biocompatible, biodegradable, possess long circulation half-life and can be loaded with variety of active substances. Carrier erythrocytes are prepared by collecting blood sample from the organism of interest and separating erythrocytes

from plasma. By using various methods the cells are broken and the drug is entrappedinto the erythrocytes, finally they are resealed and the resultant carriers are then called resealed erythrocytes.

Keywords: Novel Drug Devlivery System, Drug Targeting, Biodistribution, Biodegradable, RSE.

59. BIOPRINTING IN PHARMA

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Abstract: Additive manufacturing, otherwise known as three-dimensional (3D) printing, is driving major innovations in many areas, such as engineering, manufacturing, art, education and medicine. Recent advances have enabled 3D printing of biocompatible materials, cells and supporting components into complex 3D functional living tissues. 3D bioprinting is being applied to regenerative medicine to address the need for tissues and organs suitable for transplantation. Compared with non-biological printing, 3D bioprinting involves additional complexities, such as the choice of materials, cell types, growth and differentiation factors, and technical challenges related to the sensitivities of living cells and the construction of tissues. Addressing these complexities requires the integration of technologies from theields of engineering, biomaterials science, cell biology, physics and medicine. 3D bioprinting has already been used for the generation and transplantation of several tissues, including multilayered skin,

bone, vascular grafts, tracheal splints, heart tissue and cartilaginous structures. Other applications include developing high-throughput 3D-bioprinted tissue models for research, drug discovery and toxicology.Bioprinting is an emerging technology with various applications in making functional tissue constructs to replace injured or diseased tissues. It is a relatively new approach that provides high reproducibility and precise control over the fabricated constructs in an automated manner, potentially enabling high-throughput production. During the bioprinting process, a solution of a biomaterial or a mixture of several biomaterials in the hydrogel form, usually encapsulating the desired cell types, termed the bioink, is used for creating tissue constructs. In this review, we provide an in-depth discussion of the different bioinks currently employed for bioprinting, and outline some future perspectives in their further development.

Keywords: 3D Print, Bioprinting, Cell

60. NATIONAL AIDS CONTROL PROGRAM

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Abstract: The national AIDS control programme was launched in India in 1987. In 1992, Government of India negotiated an IDA credit of US $84 million to support the implementation of a 5-year HIV/AIDS control project, from Sept. 1992 to Sept.1997. The project was later extended up to 31 st March 1999. The objectives of the project were: 1. To slowdown the spread of HIV/AIDS 2. To decrease, morbidity and mortality associated with HIV infection. 3. To minimize socio-economic impact, resulting from HIV infection. The 2 nd phase of the programme was launched in December, 1999 with a total outlay of Rs.1425 crore. The current phase of the national programme has seen the emergence of a strongly decentralized programme with responsibility for implementation clearly placed with the states. To facilitate the smooth implementation at the state level, new and more flexible state structures of state AIDS control societies have been formed with strong

mechanism for programme management at the state level, including a strong NGO component of target intervention, supported by community awareness and treatment of STDS/ reproductive tract infections. Innovative approaches to provide technical support to state programmes have been launched through a network of 12 Technical resource groups each covering different thematic areas of the epidemic. Surveillance has been expanded and strengthened. The components of the 2 nd phase NACP (1999-2006) are: Priority targeted interventions for populations at high risk. Preventive interventions for general population. Low cost care for people living with HIV/AIDS. Institutional strengthening. Inter-sectoralcollaboration. On 15 th August 2000 the P.M. of India spoke on various health issues and said "Recently the rapidly spreading disease of HIV/AIDS has become a grave challenge to our nation. I appeal to all sections of society to fully participate in building awareness about the epidemic. They should also make necessary changes in their behavior so that this dreaded disease can be controlled.

Keywords: HIV-AIDS, Programme.

61. AMOEBISIS

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Abstract: Amoebiasis also called amoebic dysentery, first described by Fedor A. Lösch in 1875, caused by Entamoeba histolytic has great clinical impotence and is of public health significance. Histolytica has a simple life cycle involving the infective cyst that ingested through contaminated food and water and vegetative trophozoite. The pathogenesis of Entamoebahistolytica have different events like cell death, inflammation, and invasion which are performed with the help of different molecules like lectin, Amoeba pores and cysteine protease, etc. 80-90% of people infected with Entamoebahistolytica are asymptomatic (intraluminal amoebiasis) and remaining to develop manifestation like amoebic colitis, toxic megacolon, ulceration, ameboma and another extraintestinalamebiasis like amoebic liver abscess, pulmonary, cardiac and cerebral abscesses if trophozoite reaches haematogenous to these sites. The global burden caused by amebiasis is

widespread. Worldwide 50 million people are affected by this disease and 100000 deaths are reported annually. The highest burden of amebiasis is in developing countries, particularly in the tropics and subtropics, where there is inadequate hygiene and access to sanitation. Microscopy, serological and molecular methods can use for diagnosis. Pharmacological therapy and surgical intervention are recommended. As there is no effective vaccine, prevention emphasizes on sanitation and access to clean drinking water. Amoebiasis still remains problem for public health and of great clinical importance especially in developing countries. Advances in molecular epidemiology and pathogenesis have advanced our understanding of amoebiasis causative agent E. histolytic, but as most patients are asymptomatic (80-90%), diagnosis and treatment can be challenging for clinicians, potentially leading to continuous spread of the disease. Still there is no vaccine so preventive measures like good sanitation and hygienic lifestyleshould be followd.

Keywords: Amoebiasi, Dysentery, Entamoebahistolytica, Contaminated food, Water.

62. A REVIEW ON NOVEL APPEROACHES FOR COLON TARGETED DRUG DELIVERY SYSTEM

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Abstract: The colon is a site where both local and systemic delivery of drugs can take place. Local delivery could, for example, allow topical treatment of inflammatory bowel disease. Treatment could be made more effective if it were possible for drugs to be targeted directly on the colon. Colon target drug delivery system has been gained great importance not only for the treatment of local diseases but also for the systemic delivery of proteins, therapeutic peptides, antiasthmatic drugs, antihypertensive drugs and antidiabetic agents. However, recently continuous efforts have been taken on designing colon-specific delivery systems with improved site specificity and versatile drug release kinetics to accomplish different therapeutic needs. The focus of this review is to provide detailed insight into the conventional as well as recent approaches used to target the therapeutic agents specifically to the colon.The

colonic region of the gastrointestinal tract has become an increasingly important site for drug delivery and absorption. Targeted drug delivery would offer considerable therapeutic benefits to patients, in terms of both local and systemic treatment. Systems that rely on gastrointestinal pH, transit times or pressure for release are unlikely to function as reliable and effective colonspecific delivery vehicles. Colon specificity is more likely to be achieved with systems that utilise natural materials that are degraded by bacterial enzymes of colonic origin. Moreover, the cost and ease of manufacture of the delivery system are further considerations that will impact on its likely commercialisation and hence, availability to patients. A bacteria-sensitive natural film coating that can be applied to a range of solid oral dosage forms using conventional processing technology would therefore appear to be the delivery system of choice.

Keywords: Colonic, Colonspecific Delivery System.

63. GREEN SYNTHESIS, METHOD OF PREPARATION & USES OF NANOPARTICLE

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Abstract: As an emphasis on the synergistic interaction of nanotechnology and nanobiotechnology, nanoparticles need to develop environmentally benign technologies in the synthesis of bio-synthesis and nanomaterials.Microorganisms, plants and fungi can be used as biodegradable agent material inthis field work. Thus, it was possible to develop a simple, fast and green method for the synthesis of nanoparticles. Various strategies are used for the synthesis of nanoparticles. Traditionally, physicochemical techniques have increased environmental con-cerns due to the reduction of metal ions followed by surface modification, toxiccompounds added for stability, and dangerous byproducts formed. At the time of nanoparticle synthesis by adding chemical and physical methods at high temperature and pressure, reducing and stabilizing agents;

nanoparticle synthesis by biological methods; room temperature and pres-sure, reducing and stabilizing agents are needed. Green synthesis method; provides a faster metallic nanoparticle production by offering an environmentally friendly, simple, economi-cal and reproducible approach. Given the wide range of applications of metallic nanoparticles produced, biological methods play a major role in the synthesis of metallic nanoparticles. Nanotechnology is considered one of the paramount forefronts in science over the last decade. Its versatile implementations and fast-growing demand have paved the way for innovative measures for the synthesis of higher quality nanomaterials. In the early stages, traditional synthesis methods were utilized, and they relied on both carcinogenic chemicals and high energy input for production of nano-sized material. The pollution produced as a result of traditional synthesis methods induces a need for environmentally safer synthesis methods. As the downfalls of climate change become more abundant, the scientific community is persistently seeking solutions to combat the devastation caused by toxic production methods. Green methods for nanomaterial synthesis apply natural biological systems to nanomaterial production.

Keywords: Green synthesis, Nanoparticle, Toxicity, Nanomataerial

64. REVIEW ON PARKINSONISM AND TREATMENT

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Abstract: Parkinson's disease (PD) is a neurodegenerative illness and has a common onset between the ages of 55 and 65 years. There is progressive development of both motor and non-motor symptoms, greatly affecting one's overall quality of life. While there is no cure, various treatments have been developed to help manage the symptoms of PD. Management of PD is a growing field and targets new treatment methods, as well as improvements to old ones. Pharmacological, surgical, and therapeutic treatments have allowed physicians to treat not only the main motor symptoms of PD, but target patient-specific problems as they arise. This review discusses both the established and new possibilities for PD treatment that can provide patient-specific care and mitigate side effects for common treatments.L-DOPA remains the most accepted form of treatment for PD, as it is used as a dopamine replacement for this

neurodegenerative disease. While other dopamine agonists are successful at controlling symptoms of PD early on in the onset of the disease, L-DOPA is the most effective pharmaceutical at helping to improve QoL, especially once symptoms become more unmanageable with other anti-parkinsonian medications. There is no known cure for PD, but alternative drug, surgical and behavioral therapies exist for the treatment of PD, and new therapies are being developed to help mitigate the side effects and symptoms of this progressive disease. Physical, occupational, and speech therapies provide non-drug alternatives that can be used in adjunct with medications, or separately for those who prefer more natural approaches. They can help treat individual symptoms as they arise. There is still a need to further explore other treatments, and more studies can delve into the under-researched therapies for PD, but the future of PD treatment is promising for patient-specific care that is more effective and with minimal side effects.

Keywords: Parkinson's disease, Parkinson's treatment, substantianigra, basal ganglia, Lewy bodies, α-synuclein, dopamine, levodopa

65. RECENT APPROACHES OF OMEPRAZOLE TBALET FOR PEPTIC ULCER

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Abstract: Omeprazole is a proton-pump inhibitor used to manage and treat several conditions, including uncomplicated heartburn, peptic ulcer disease, gastrointestinal reflux disease, Zollinger-Ellison syndrome, multiple endocrine adenomas, systemic mastocytosis, erosive esophagitis, gastric ulcers, and helicobacter pylori infection. This activity reviews the indications, mechanism of action, administration, dosage, contraindications, interactions, and potential adverse effects of omeprazole therapy. It also highlights other key elements of omeprazole therapy in the clinical setting as it relates to the essential points needed by members of an interprofessional team managing the care of patients with peptic ulcers and other related conditions and sequelae.The addition of oral omeprazole to combination injection sclerotherapy decreases the rate of recurrent

bleeding, reduces the need for surgery and transfusion, and shortens the hospital stay for patients with stigmata of recent hemorrhage.Therapeutic endoscopy has provided a new means of treating bleeding peptic ulcers. Additional medical therapy may enhance the therapeutic benefit. Hemostasis is highly pH dependent and is severely impaired at low pH. Proton pump inhibitors, by achieving a significantly higher inhibition of gastric acidity, may improvethe therapeutic outcomes after endoscopic treatment of ulcers.The study was conducted in the Department of Gastroenterology, Sher-i-Kashmir Institute of Medical Sciences, Srinagar, India, from July 1996 to July 1999. All patients presenting with upper gastrointestinal bleeding were considered for inclusion in the study if medical staff witnessed hematemesis, melena (passage of black, tarry stools), bloody nasogastric aspirate, or melena on a digital examination

Keywords: Omeprazole, Gastric Acidity, Proton-Pump Inhibitor.

66. RED BLOOD CELL

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Abstract: Human red blood cells (RBC) are highly differentiated cells that have lost all organelles and most intracellular machineries during their maturation process. RBC are fundamental for the nearly all basic physiologic dynamics and they are key cells in the body's respiratory system by being responsible for the oxygen transport to all cells and tissues, and delivery of carbon dioxide to the lungs. With their flexible structure RBC are capable to deform in order to travel through all blood vessels including very small capillaries. Throughout their in average 120 days lifespan, human RBC travel in the bloodstream and come in contact with a broad range of different cell types. In fact, RBC are able to interact and communicate with endothelial cells (ECs), platelets, macrophages, and bacteria. Additionally, they are involved in the maintenance of thrombosis and hemostasis and play an important role in the immune response against pathogens. To clarify the mechanisms of

interaction of RBC and these other cells both in health and disease as well as to highlight the role of important key players, we focused our interest on RBC membrane components such as ion channels, proteins, and phospholipids.An overview of current knowledge on the interaction of RBC with other cells, ECs and platelets, in physiological and disease conditions, is presented here. Both direct interactions through receptors on the RBC and other key players, such as ECs, platelets, WBC, macrophages, other RBC, have been discussed, as well as indirect interactions between thesecells . Indirect interaction can occur through plasma ligands, proteins and released molecules or particles from these cells. Other indirect interactions described in this review are mechanical: these kind of interactions are focused on the dynamic and rheological distribution of RBC in contact with other cells in physiological flow conditions. This underlines the complexity of the global interactions in which the mature RBC are involved and, more importantly, addresses a crucial attention to the pathological circumstances.

Keywords: RBC, Cell, Platelets, Interactions, Protiens.

67. WILSON DISEASE

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Abstract: Wilson's disease is an autosomal-recessive disorder caused by mutation in the ATP7B gene, with resultant impairment of biliary excretion of copper. Subsequent copper accumulation, first in the liver but ultimately in the brain and other tissues, produces protean clinical manifestations that may include hepatic, neurological, psychiatric, ophthalmological, and other derangements. Genetic testing is impractical because of the multitude of mutations that have been identified, so accurate diagnosis relies on judicious use of a battery of laboratory and other diagnostic tests. Lifelong palliative treatment with a growing stable of medications, or with liver transplantation if needed, can successfully ameliorate or prevent the progressive deterioration and eventual death that would otherwise inevitably ensue. This article discusses the epidemiology, genetics, pathophysiology, clinical features, diagnostic testing, and treatment of Wilson's disease.Clinical practice guidelines for Wilson's

disease (WD) have been published by the American Association for the Study of Liver Diseases and European Association for the Study of the Liver in 2008 and 2012, respectively. Their focus was on the hepatic aspects of the disease. Recently, a position paper on pediatric WD was published by the European Society of Pediatric Gastroenterology Hepatology and Nutrition. A need was felt to harmonize guidelines for the hepatic, pediatric, and neurological aspects of the disease and contextualize them to the resource-constrained settings. Therefore, experts from national societies from India representing 3 disciplines, hepatology (Indian National Association for Study of the Liver), pediatrichepatology (Indian Society of Pediatric Gastroenterology, Hepatology and Nutrition), and neurology (Movement Disorders Society of India) got together to evolve fresh guidelines. A literature search on retrospective and prospective studies of WD using MEDLINE (PubMed) was performed. Members voted on each recommendation, using the nominal voting technique. The Grades of Recommendation, Assessment, Development and Evaluation system was used to determine the quality of evidence. Questions related to diagnostic tests, scoring system, and its modification to a version suitable for resource-

constrained settings were posed. While ceruloplasmin and 24-h urine copper continue to be important, there is littel

Keywords: : Ceruloplasmin, copper, Wilson's disease, penicillamine, zinc, Wilson's disease scoring, modified Leipzig scoring, rare disease, genetic disorder

68. MEDICINAL HERBS TO TREAT HYPERTENSION

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Abstract: Hpertension is a common problem facing many peoples today. Although billions of dollars are spent annually for the treatment and detection of cardiovascular disease, current conventional treatments have done little to reduce the number of patients with hypertension. Alternative medicine offers an effective way to decrease the rising number of people with high blood pressure. Research has found a variety of alternative therapies to be successful in reducing high blood pressure including diet, exercise, stress, management, supplements and herbs. Every year, more and more studies are being performed on herbal remedies for high blood pressure. There are many herbal drugs like Punarnava, Barberry, Rouwolfia, Garlic, Ginger, Ginseng and Arjuna which can safely use for the treatment of hypertension. Hypertension (HTN) is the medical term for high blood pressure. It is dangerous because it makes the heart work too hard and

contributes to atherosclerosis (hardening of arteries), besides increasing the risk of heart disease and stroke. HTN can also lead to other conditions such as congestive heart failure, kidney disease, and blindness. Conventional antihypertensives are usually associated with many side effects. About 75 to 80% of the world population use herbal medicines, mainly in developing countries, for primary health care because of their better acceptability with human body and lesser side effects. In the last three decades, a lot of concerted efforts have been channeled into researching the local plants with hypotensive and antihypertensive therapeutic values. The hypotensive and antihypertensive effects of some of these medicinal plants have been validated and others disproved. However, ayurvedic knowledge needs to be coupled with modern medicine and more scientific research needs to be done to verify the effectiveness, and elucidate the safety profile of such herbal remedies for their antihypertensive potential.

Keywords: Antihypertensive, Herbs, Hypotensive, Hypertension, Medicinal Plants

69. FORMULATION AND EVALUATION OF SOLID DISPERSION FOR POOORLY WATER SOLUBLE DRUG

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Abstract: Aceclofenac (2-[(2, 6-dichlorophenyl) amine] phenylacetoxyacetic acid) is an orally effective non-steroidal anti-inflammatory drug (NSAID) of phenyl acetic acid group, which possesses remarkable anti-inflammatory, analgesic and antipyretic properties [1], [2]. Aceclofenac appears to be particularly well-tolerated among the NSAIDs, with a lower incidence of gastrointestinal adverse effects [3]. Unfortunately, aceclofenac suffers from low aqueous solubility (0.058 µg/ml), leading to poor dissolution and insufficient oral bioavailability. The biopharmaceutical classification system (BSC) divides all drug candidates into four different groups, according to their solubility and permeability [4]. Aceclofenac is an example of BSC class II compound, its oral bioavailability is determined by dissolution rate in the

gastrointestinal tract [5], [6]. Therefore, the improvement of aceclofenac dissolution is an important issue for enhancing its bioavailability and therapeutic efficacy. The present study was carried out with a view to enhance dissolution rate of poorly water-soluble drug aceclofenac (BCS-class II) using Avicel 200 and Sylysia 350 as polymers. Surface solid dispersion (SSD) was prepared by kneading method using different ratios of aceclofenac and polymers. Phase solubility study was conducted to evaluate the effect of polymer on aqueous solubility of aceclofenac. Solid state characterization was evaluated by Scanning electron microscopy (SEM), Fourier transformation infrared spectroscopy (FTIR), Differential scanning calorimetry (DSC) and X-ray diffraction study (XRD). *In vitro* dissolution study was performed in phosphate buffer at pH 6.8. Solid state study showed partial interaction between aceclofenac and polymer. *In vitro* dissolution rate of aceclofenac from solid dispersion (SD) was significantly higher compared to pure aceclofenac. The dissolution rate of the drug was affected by nature and amount of polymer used. The dissolution rate of aceclofenac/Avicel 200 solid dispersion (1:5) was higher than that of aceclofenac/Sylysia 350 solid dispersion (1:3).

Thus, solid dispersion technique can be successfully used for the improvement of the dissolution profile of aceclofenac.

Keywords: Aceclofenac, Solid Dispersion, Solubility, Dispersion.

70. WHO GUIDELINES ON SAFETY MONITORING OF HERBAL MEDICINE IN PHARMACOVIGILANCE SYSTEM

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Abstract: The WHO has welcomed the active participation of drug regulatory authorities and national pharmacovigilance centers, among others, in the development of these guidelines. This has provided a useful starting point for strengthening communication between these authorities, which will be needed to ensure progress toward the common goal—the safety of herbal medicines. The recommended approach is to include herbal medicines in the existing national pharmacovigilance systems or, where such systems have not yet been developed, to establish comprehensive national pharmacovigilance systems, which incorporate coverage of herbal medicines. The guidelines therefore identify the particular challenges posed in monitoring the safety of herbal medicines effectively and propose approaches for overcoming them. Special attention is also given to the reporting system for

adverse reactions to herbal medicines, and to the analysis of the causes of the reported adverse reactions. Currently, a majority of the adverse events related to the use of herbal products and herbal medicines that are reported are attributable either to poor product quality or to improper use. Inadequate regulatory measures, weak quality control systems, and largely uncontrolled distribution channels (including mail order and Internet sales) may have been contributing to the occurrence of such events. In order to expand the knowledge about genuine adverse reactions to herbal medicines, and to avoid wasting scarce resources for identifying and analyzing adverse events, events resulting from such situations will need to be reduced or eliminated. Member States of the World Health Organization (WHO) are therefore encouraged to strengthen national regulation, registration and quality assurance and control of herbal medicines. In addition, the national health authorities should give greater attention to consumer education and to qualified practice in the provision of herbal medicines.

Keywords: Guidelines, Herbal Medicines, Pharmacovigilance, Regulatory.

71. DETERMINATION OF CASE IN PRESENT IN DIFFERENT MILK SAMP

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Abstract: Casein (from Latin caseus"cheese") is a family of related phosphor proteins (αS1, αS2, β, ϰ). These proteins are commonly found in mammalian milk, comprising c. 80% of the proteins in cow's milk and between 20% and 45% of the proteins in human milk. The Casein has a wide variety of uses, from being a major component of chees , to use as a food additive. The most common form of casein is Sodium caseinate. As a food source, casein supplies amino acids,carbohydrates, and two essential elements, calcium and phosphorus. Casein contains a high number of proline residues,which do not interact. There are also no disulfide bridges. As a result, it has relatively little tertiary structure. It is relatively hydrophobic, making it poorly soluble in water. It is found in milk as a suspension of particles, called casein micelles, which show only limited resemblance

with surfactant-type micelles in a sense that the hydrophilic parts reside at the surface and they are spherical. However, in sharp contrast to surfactant micelles, the interior of a casein micelle is highly hydrated. The caseins in the micelles are held together by calcium ions and hydrophobic interactions. Any of several molecular models could account for the special conformation of casein in the micelles.One of them proposes the micellar nucleus is formed by several sub micelles, the periphery consisting of micro vellosities of $\varkappa$-casein. Another model suggests the nucleus is formed by casein-interlinked fibrils. Finally, the most recent model proposes a double link among the caseins for gelling to take place. All three models consider micelles as colloidal particles formed by casein aggregates wrapped up in soluble $\varkappa$-casein molecules. The iso electric point of casein is 4.6. Since milk's pH is6.6, casein has a negative charge in milk. The purified protein is water-insoluble.While it is also insoluble in neutral salt solutions, it is readily dispersible in dilute alkalis and in salt solutions such as aqueous sodiumoxalate and sodium acetate. The enzyme trypsin can hydrolyze a phosphate-containing peptone.

Keywords: Casein, Milk, Micelles, Water Soluble

72. REVIEW ON HYPERTENSION

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Abstract: The aim of the study was to conduct a meta-analysis of epidemiological and case control studies to determine whether arterial hypertension is specifically associated with an increased risk of vascular dementia (VaD).Longitudinal and cross-sectional prospective studies using operationalised criteria to define VaD and hypertension, with a normal control comparison group were systematically reviewed. Cochrane Library, Embase, Medline, and PsycInfo data sources were searched along with reference lists of included articles and reviews. Original, prevalence or incidence studies were included if operationalised criteria for hypertension and VaD as well as number of cases with and without hypertension in VaD and non-demented groups were provided. Intervention studies and post-stroke and CADASIL studies were excluded.Eleven studies recruiting either volunteers or clinical patients, or which were population-based, examined a total of 768 people

with VaD and 9857 control cases. Hypertension, coronary heart disease (CHD), and anxiety disorders all cause substantial morbidity to patients and costs to the healthcare system. Associations between these diseases have been hypothesized and studied for decades. In particular, psychosocial stressors associated with anxiety disorders raise autonomic arousal via the hypothalamic-pituitary axis which increases circulating catecholamines. This heightened arousal is associated with an increased risk of hypertension and a pro-inflammatory state and, consequently, development of coronary heart disease. This association holds across the spectrum of anxiety disorders (generalized anxiety, posttraumatic stress disorder, panic disorder, and obsessive compulsive disorder) and also when controlling for comorbid conditions such as depression and physical ailments. Multiple cross sectional studies reveal a positive association between anxiety and hypertension. These associations are bidirectional, with those with hypertension being more likely to have anxiety and those with anxiety being more likely to have hypertension. However, a few studies have shown no association. Longitudinal studies point to an increased risk of development of hypertension in patients who suffer from anxiety. More

convincing studies show links between anxiety symptoms and disorders, including panic disorder and PTSD, and cardiovascular outcomes. Drawing broad conclusions from these studies is challenging, however, given the multiplicity of scales used to measure anxiety disorders. Anxiety, hypertension, and CHD are common conditions seen in primary care, and anxiety may be an important predictor of future CHD outcomes. Better recognition of the association of these conditions and the possible roles of each in development of the other should alert primary care providers to bevigilant in monitoring and treating anxiety, hypertension, and CHD.

Keywords: Vascular Dementia, Hypertension, Anxiety, Coronary Heart Disease

73. A REVIEW ON ARTIFICIAL INTELLIGENCE IN HEALTH CARE SECTOR

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Abstract: Artificial intelligence is revolutionizing-and strengthening-modern healthcare through technologies that can predict, grasp, learn, and act, whether it's employed to identify new relationships between genetic codes or to control surgery-assisting robots. It can detect minor patterns that humans would completely overlook. This study explores and discusses the various modern applications of AI in the health sector. Particularly, the study focuses on three most emerging areas of AI-powered healthcare: AI-led drug discovery, clinical trials, and patient care.

The findings suggest that pharmaceutical firms have benefited from AI in healthcare by speeding up their drug discovery process and automating target identification. Artificial Intelligence (AI) can help also to eliminate time-consuming data monitoring methods. The

findings also indicate that AI-assisted clinical trials are capable of handling massive volumes of data and producing highly accurate results. Medical AI companies develop systems that assist patients at every level. Patients' medical data is also analyzed by clinical intelligence, which provides insights to assist them improve their quality of life. The healthcare industry is in the midst of a transformation. The causes of this revolution are rising total health-care cost and a growing lack of health-care experts. As a result, the healthcare industry is looking to implement new information technology-based solutions and processes that can cut costs and give solutions to these rising difficulties

Keywords: Artificial intelligence, Clinical trial, Healthcare.

74. DEVELOPMENT AND VALIDATION OF ANALYTICAL METHOD FOR ESTIMATION OF VELPATASVIR

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Abstract: The purpose of the research is to develop a simple, precise, economical, accurate, reproducible, and sensitive method for the estimation of velpatasvir drug product by rp-hplc method

Methods: New Analytical method was developed for the estimation of Velpatasvir drug product by liquid chromatography. The chromatographic separation was achieved on C18 column (Luna 18 150*4.6mm3.0um) at ambient temperature. The separation achieved employing a mobile phase consists of 0.1%v/v Formic acid in water: Methanol: Acetonitrile (35:40:25). The flow rate was 0.8ml/ minute and ultra violet detector at 269nm. The average retention time for Velpatasvir found to be 2.62 min.

Results: The developed method was validated as per the ICH analytical method validation guidelines. All validation parameters

were within the acceptable range. The assay methods were found to be linear from 20-60µg/ml for Velpatasvir. The correlation coefficient was 0.9998 for velpatasvir . The mean percentage recovery for the developed method was found to be in the range of 98.4-100.4% for velpatasvir. The developed method was also found to be robust

Conclusion: The developed method was found to be suitable for the routine quantitative analysis of Velpatasvir in bulk and pharmaceutical dosage form. It was also concluded that developed method was accurate, precise, linear, reproducible, robust, and sensitive.

Keywords: Velpatasvir, Isocratic, High performance liquid chromatography, C18, Formic acid, Methanol

75. REVIEW ON SWINE FLU

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Abstract: Swine flu, also called Hog or Pig Flu, is a contamination because of someone of the several forms of Swine Influenza Virus (SIV). It is common place through pig populace worldwide. Until now only folks were inside the direct contact with pigs were found to get swine flu. But, H1N1 virus is a brand new swine flu virus and it includes the genetic material of swine, hen and human influenza virus.

H1N1 influenza or swine flu is a contagious disease this is as a result of the influenza virus. Infection with the H1N1 influenza virus can bring about intense illness and lifestyles threatening complications. Symptoms of H1N1 flu are similar to the ones of the common place flu and scientists are actively reading the scenario to better recognize its variety of signs and how it is spread. The intensity of this disorder may be lowered with the aid of diagnosing and taking proper treatments.

Most commonly, swine flu is of the H1N1 influenza subtype. However, swine flu viruses can once in a while come from other subtypes, along with H1N2, H3N1 and H3N2. The 2009 outbreak of swine flu that infected human beings changed into of the H1N1 subtype.

It is critical to notice that, even though it evolved in swine, the 2009 pandemic virus became not completely derived from swine. The virus incorporates a combination of flu genes from bird, swine and human flu types.

Keywords: H1N1, H1N2, H3N1, H3N2, Influenza, Swine flu.

76. CHEMOTHERAPY OF ANTINEOPLASTIC DRUGS

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Abstract: Chemotherapeutics are chemical entities used to treat or cure cancers. These agents target critical processes for cell division in rapidly growing cancer cells. Most cancer drugs are derived from natural sources such as plants and bacteria, other are derived from synthetic or semi synthetic processes. Cancers can arise in virtually all tissues of the body, but the frequency of incidences varies depending on genetic influence, diet, lifestyle and environmental exposures.

The most common cancers worldwide are lung, breast and prostate cancers which have had increased survival due to improvements in diagnoses and treatment options. Naturally derived agents have been the mainstay of cancer therapy and the potential to uncover endemic compounds that may exhibit potent anticancer properties has driven research for novel anticancer agents.

A number of active agents or extracts from plants extracts have been studied for their anti-cancer properties, some of these will be discussed herein. The number of patients suffering from cancer is constantly increasing and, consequently, the number of different chemotherapy treatments administered is increasing. Given the high reactivity and toxicity of antineoplastic drugs, analytical methods are required in all pharmaceutical fields, from drug development to their elimination in wastewater; including formulation quality control, environment and human exposure and therapeutic drug monitoring.

Keywords: Cancer, Prostate cancers, Antineoplastic, Anticancer.

77. GENE THERAPY

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Abstract: Gene therapy promises to revolutionize medicine by treating the causes of disease rather than the symptoms. We are nearing the end of the first decade of gene therapy, and this article summarizes the approaches taken, results achieved, lessons learned and important recent developments.

The early results on the clinical efficacy of gene therapies were disappointing, largely because the available gene-transfer vectors proved to be inadequate. Recently, however, clinical benefit has been clearly demonstrated and great progress made in selecting and improving vectors. There is now every prospect that the second decade will see gene therapy live up to its enormous potential. Gene-based therapies for cancer in clinical trials include strategies that involve augmentation of immunotherapeutic and chemotherapeutic approaches. These strategies include ex vivo and in vivo cytokine gene transfer, drug sensitization

with genes for prodrug delivery, and the use of drug-resistance genes for bone marrow protection from high-dose chemotherapy. Inactivation of oncogene expression and gene replacement for tumor suppressor genes are among the strategies for targeting the underlying genetic lesions in the cancer cell. A review of clinical trial results to date, primarily in patients with very advanced cancers refractory to conventional treatments, indicates that these treatments can mediate tumor regression with acceptably low toxicity.

Keywords: Biotechnology, Genetics, Biochemistry, Gene delivery, Gene expression, Vectors, Clinical, Prospects

78. PHOTOCHEMICAL & BIOLOGICAL EVALUATION OF SPATHODEA CAMPANULATA

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Abstract: Spathodea campanulata P. Beauv., belonging to the family Bignoniaceae, is a big erect tree with an ancient historyof medicinal use in Africa. In the traditional system, it is mentioned for the treatment of malaria, diabetes, stomachulcers, wounds, skin infections and viral diseases. The aim of the review is to make available the current informationthat exists on the traditional uses, phytochemistry, pharmacology, and toxicology of S. campanulata. Additionally, thepotential uses of this plant to treat various diseases and to bring in a foundation for further research are emphasized.

The present review is carried out by compiling literature from 1972 to 2021, concerning the morphology, traditionaluses, phytochemistry, pharmacological activities, and toxicological aspects of S. campanulata. Literatures werecollected from various online search engines,

viz. Google Scholar, PubMed, Science Direct, Core, and SemanticScholar. Diverse chemical compounds including iridoids, terpenoids, steroids, cinnamic acid derivatives, cerebrosides,flavonoids, and carotenoids have been isolated from this plant.

In some in-vitro studies, the anticancer,antibacterial, antiviralinsecticidal, larvicidal, and anti-oxidant potential has been proved. Preclinical studies have demonstrated remarkableactivity which supports the conventional use of the plant as an antimalarial, wound healing, antidiabetic, antimicrobial,and anti-inflammatory agent for years without any adverse effects. Based on the results obtained from a combinationof in vivo and in vitro potency and toxicity studies reported, S. campanulata is a promising agent in the development of nutraceuticals against malaria and diabetes.

The only clinical studydocumented is for curing malaria, but with crude extract only. With its current extensive traditional use, there is a needfor additional studies of the isolated compounds, clinical trials, and product development to take full advantage of this widely distributed medicinal plant.

Keywords: Spathodea Campanulata, Bignoniaceae, Ethnomedicine, Phytochemical, Pharmacology.

79. CARBON NANO TUBES

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Abstract: Carbon nanotubes (CNTs) are one of the wonders of modern science discovered. CNTs have been regarded as the stiffest and the strongest material ever developed and received considerable interest in research because of their unique atomic structure, dimension and attractive properties. In the past decade, researchers made several attempts and efforts exploiting the exceptional properties of CNTs toward the development of CNTs applications. Nowadays the carbon nanotubes-derived products have smeared into our life step by step, and before long, they will function as essential components for technological innovations. A recent direction of research has been to try to gain further understanding by the use of computational methods and models which appeared with the advancement of computer technology. In this paper, a summary of recent research achievements related to the carbon nanotubes and their applications in nanomaterials. Several important

aspects that influence the properties of carbon nanotube will also be discussed.

Keyword:- Nanotechnology, Carbon Nanotubes, Nanomedicine

80. ECOSYSTEM IS A CRUCIAL ASSEMBLY FOR BALANCE ENVIRONMENT

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Abstract: Science that has emerged during the last few decades clearly demonstrates that the lifesupporting systems of the planet have already gone past their critical points. This is due to humanity's mindless use, exploitation, pollution, consumerism, and abuse of the resources of the planet —air, food, water, oceans, energy, rivers, soil, fish, forests, oil, timber, energy, gas, coal, minerals, and everything. In its endless adulation of greed, irrational accumulation of materialwealth, and seemingly insatiable quest for more comforts, pleasures, andconveniences, nothing has been spared.The effects of this assault can be seen everywhere.

Keyword: Economic dimensions: economic needs such as adequate livelihood and productive assets, and systems, and how these interact with the environment.

Social and cultural dimensions: social and cultural needs and systems, e.g. health, education, shelter, equity, cultural institutions and norms, and their relationship with the environment.

Political dimensions: political needs (ability to participate in decision-making processes) and systems, and how they influence the environment.

81. HABITAT MODEL FOR MANAGEMENT OF ENVIRONMENTAL SPECIES

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Abstract: A fundamental problem of sustainability is how to reduce the double complexity of ecological and social systems into simple operational terms. We highlight that the conservation concept of focal species (selected species sensitive to a set of anthropogenic threats to their habitat) links multiple issues of ecological sustainability, and their habitat models can provide a practical tool for solving these issues. A review of the literature shows that most spatial modeling of focal species focuses on vertebrates, lacks the aspect of aquatic and soil habitats, and has been slow in the uptake by actual management planning. We elaborate on a deductive modeling approach that first generalizes the main influential dimensions of habitat change (threats), which are then parameterized as habitat quality estimates for focal species.

Keywords: Biodiversity; Ecological Sustainability; Fine-Filter Approach; Geographical Information Systems; Habitat Restoration; Habitat Suitability Model; Indicator Species; Pressure–State–Response Model; Protected Areas; Stand Structure

82. HUMAN EMBRYONIC STEM CELLS

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Abstract: Stem cells are a population of undifferentiated cells characterized by the ability to extensively proliferate (self-renewal), usually arise from a single cell (clonal), and differentiate into different types of cells and tissue (potent). There are several sources of stem cells with varying potencies. Pluripotent cells are embryonic stem cells derived from the inner cell mass of the embryo and induced pluripotent cells are formed following reprogramming of somatic cells. Pluripotent cells can differentiate into tissue from all 3 germ layers (endoderm, mesoderm, and ectoderm). Multipotent stem cells may differentiate into tissue derived from a single germ layer such as mesenchymal stem cells which form adipose tissue, bone, and cartilage. Tissue-resident stem cells are oligopotent since they can form terminally differentiated cells of a specific tissue. Stem cells can be used in cellular therapy to replace damaged cells or to regenerate organs. In addition, stem cells have expanded our

understanding of development as well as the pathogenesis of disease. Disease-specific cell lines can also be propagated and used in drug development. Despite the significant advances in stem cell biology, issues such as ethical controversies with embryonic stem cells, tumor formation, and rejection limit their utility. However, many of these limitations are being bypassed and this could lead to major advances in the management of disease. This review is an introduction to the world of stem cells and discusses their definition, origin, and classification, as well as applications of these cells in regenerative medicine.

Keywords: Human, Embryonic, Cells, Progenitors, Differentiation, Ectoderm, Endoderm, Mesoderm, Karyotype

83. PROBIOTIC AND PREBIOTIC

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Abstract: The health benefits imparted by probiotics and prebiotics as well as symbiotic have been the subject of extensive research in the past few decades. These food supplements termed as functional foods have been demonstrated to alter, modify and reinstate the pre-existing intestinal flora. They also facilitate smooth functions of the intestinal environment. Most commonly used probiotic strains are: *Bifidobacterium, Lactobacilli, S. boulardii, B. coagulans.* Prebiotics like FOS, GOS, XOS, Inulin; fructus are the most commonly used fibres which when used together with probiotics are termed symbiotic and are able to improve the viability of the probiotics. Present review focuses on composition and roles of Probiotics, Prebiotics and Symbiotic in human health. Furthermore, additional health benefits like immune-modulation, cancer prevention, inflammatory bowel disease etc. are also discussed.

"Let food be thy medicine and medicine be thy food", the age old quote by Hippocrates is the ideology of today's health conscious population. Eli Metchnikoff, the Russian Nobel prize winner was the first one to recognize the beneficial role of select bacteria on gastrointestinal tract of humans. Subsequently the "Theory of Longevity" by Metchnikoff was correlated with prolonged youth and a healthy old age, observed largely in Balkan peasants of those times, who used cultured milks in their diet (Kaufmann 2008).

Keywords: Probiotics, Prebiotics, Symbiotic, Intestinal disorders, Cancer, Cardiovascular diseases

84. STUDY ON EBOLA VIRUS DISEASE

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Abstract: Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever, is a severe, often fatal illness in humans. Ebola virus (EBOV) is transmitted through contact with blood or body fluids of a person who contracted or died from EVD, contaminated objects like needles and infected animals or bush meat. EVD has an incubation period of 2 to 21 days, and the infection has an acute onset without any carrier status. Currently, there is no standard treatment for EVD, so it is important to avoid infection or further spreading of the virus. Although historically the mortality of this infection exceeded 80%, modern medicine and public health measures have been able to lower this figure and reduce the impact of EBOV on individuals and communities. Its treatment involves early, aggressive supportive care with rehydration. Clinicians should consider the possibility of EVD in persons with travel or exposure history with the incubation period presenting constitutional

symptoms in order to promptly identify diseased patients, and prevent further spreading of the disease.

Ebola virus disease (EVD) first appeared in 1976 in 2 simultaneous outbreaks in Nzara, Sudan, and in Yambuku, Democratic Republic of Congo. The latter occurred in a village near the Ebola River, from which the disease takes its name. The mortality rate was around 90 percent. Although medical facilities have improved over the years, case fatality rates have varied from 25% to 90% in past outbreaks. EVD outbreak that began in February 2014 in Guinea, is the most prevalent EVD outbreak recorded in the history which spred to Liberia, Sierra Leone, Nigeria, Senegal, Spain, and the United States. It had common features with the outbreak in 1976. Zaire Ebola virus was isolated in both outbreaks with the disease onset in rural forest communities.

Keywords: *Ebola virus disease*, *epidemiology*, *diagnosis*, *treatment*

85. BIOMEDICAL WASTE MANAGEMENT

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Abstract: Any type of waste generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining there to or in production or testing of biological and other activities by hospitals, pathological practices and health camps etc. Concerning healthcare facilities either solid or liquid containing harmful materials called biomedical wastes. Only about 10%-25% of BMW is hazardous, and the remaining 75%– 95% is nonhazardous. The hazardous part of the waste presents physical, chemical, and/or microbiological risk to the general population and health-care workers associated with handling, treatment, and disposal of waste. These wastes consists of mainly human tissues, infected blood, body parts, cadaver fluids, useless and residuals of medicines, drugs, unhygienic cotton, dressings, and sharps like glasses, needles, blades, scalpels, lancets. Collection and disposal of biomedical waste has greatest risk to healthcare, cleanliness

workers and the general community. The hazardous biomedical waste without proper sterilization leads to various infective diseases for example Hepatitis B & C, Acquired Immune Deficiency Syndrome (AIDS), Severe Acute Respiratory Syndrome (SARS), Tetanus, Psychosocial distress etc.

The modern mankind lives in an environment which is greatly polluted mostly because of their own torturous activities on the environment and the pollution created by the mankind is again a threat to themselves. The industrialization has already enlightened the rate of pollution and therefore waste management emerges as a concern of the hour. They release solid, liquid or gaseous substances which disturb the environmental and ecological balance. Such substances are possible intimidation to the living beings and also to the environment. Along with now a day's Biomedical waste is also taking an unsafe and extremely hazardous position which can provide rise to serious diseases that may be deadly; therefore it is a subject of worldwide concern. Biomedical waste management is of immense importance to reduce the severe health implications. This article deals with the basic issues of biomedical waste disposal and management of biomedical waste. The purpose of

this paper is to spread knowledge among the human resources concerned in health care services to prevent transmission of the diseases in the society and to protect physical condition of public and the surroundings.

Keywords: Biomedical Waste, Management, Environment, Hazardous

86. CANCER

Mr. Kadam Raju, Mr. Kadam Pratik

Abstract: Cancers are a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread of cancer cells this stage is known as metastasis is not controlled, it can result in death. Cancer is caused by many external factors (tobacco, chemicals, radiation and infectious organisms) as well as some internal factors (inherited mutations, hormones, immune conditions and random mutations). The causes of cancer are diverse, complex and only partially understood. Many things are known to increase the risk of cancer, including dietary factors, certain infections, lack of physical activity, obesity and environmental pollutants. These factors may act together to initiate or promote carcinogenesis in human body and thus cancer is leading cause of death.

Cancer has become one of the causes of death in India. It is estimated that there are nearly 2 to 2.5 million cancer cases at any given point of time. Over 7 lakhs new cases and 3 lakhs deaths occur annually due to cancer. Nearly 15 lakhs patients require facilities for diagnosis, treatment and follow up at a given time.

Now a day's cancer is the most prevalent life threatening disease which is spreading because of the lifestyle we are living. Cancer is due to uncontrolled growth of cell which can be cured if diagnosed in early stage of life. Treatment of cancer depends on the various internal and external factors causing cancer. Cancer is screened by different screening test and a number of treatments are now available these days such as gene therapy, chemotherapy, surgery, radiation therapy, immunotherapy etc. In future up to 2030 around 22.2 million cases are expected to be diagnosed for cancer.

Keywords: Cancer, Carcinogens, Prevalence

87. CHEMOTHERAPY OF ANTINEOPLASTIC DRUGS

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Abstract: Chemotherapy is a relatively new form of cancer treatment. Prior to the 1940's, no drugs were known to be effective against cancer. However, during that decade, observations of the effects of nitrogen mustard gas on the lymphoid system of seamen exposed during World War II resulted in its use in patients with Hodgkin's disease and other lymphomas and led to the development of other alkylating agents. Similarly, studies of the effect of folic acid on the growth of leukemic cells in children with acute lymphoblastic leukemia led to the development of antifolate agents in the early 1950's. This new approach to cancer therapy made it possible to treat disease which had spread beyond its site of origin.

The therapy of cancer has improved dramatically during the past half century. This improvement can be traced to a number of factors: a better understanding of cancer's cause and natural history, better technologies for early detection and diagnosis, improved control of primary tumors through surgery and radiation therapy and more effective drugs. The evolution

of drug therapy for cancer has progressed rapidly from alkylating agents and antimetabolites to natural products, and most recently, molecular targeted drugs such as imatinib and gefitinib. As our understanding of the biology of cancer improves, new targets for therapy are being identified daily.

Antineoplastic drugs are one of three potential modalities in the treatment of cancer. The other two are surgery and radiation therapy. Antineoplastics can be used as primary treatment in tumors not amenable to surgery or radiation such as leukemia or in widespread metastatic disease. Most commonly, chemotherapy is used in conjunction with surgery or radiation or both.

Keywords: Antineoplastic drugs, Drug classes, Pathophysiology, Treatment, Toxicity

88. EXTRACTION, STANDARDIZATION AND ANTIOXIDANT SCREENING OF OIL OF SEMECARPUS ANACARDIUM SEEDS

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Abstract: Semecarpus anacardium (SA) Linn (Family:Anacardiacea) is found in sub-Himalayan region, central and tropical parts of India. Its nut is commonly known as "washer men or marking nut" and in Hindi as "Ballataka" or "Bhilwa". The nuts are also used for variety of disorders in Ayurveda. Purified nut of S. anacardium are prescribed for toxic conditions, skin diseases, tumours, malignant growth, fevers, haemoptysis, excessive menstruation, vaginal discharge, lactation deficiency, constipation, intestinal parasites. It has been used therapeutically in neurological disorders, ulcers. Many compounds mainly sterols, phenolics, biflavonoids, bhilawanols, Anacardic acid, and glycosides are present in Semecarpus anacardium nut extract. Studies have also reported that the

drug has anticancer, anthelmintic,anti-inflammatory, antiarthritic, antifungal and antioxidative activity.

The aim of this research is to determine the antioxidant activity of nuts of Semecarpus anacardium Linn. (Bhilwa a.k.a. marking nut). In this study, S. anacardium oil was extracted and purified by traditional methods and the purity was confirmed by TLC. Chemical constituents of the oil were determined by performing different chemical tests which positively indicate the presence of constituents like alkaloids, tannins, carbohydrates, cardiac glycosides, fats & oils, flavonoids and absence of saponin glycoside. Antioxidant activity was measured by Hydrogen peroxide scavenging capacity using Ascorbic Acid as standard. This study indicates that S.anacardium shows antioxidant activity and can be used as easily accessible source of naturally remarkable antioxidant property and in pharmaceutical industry, given that the active compounds are investigated and used to increase the armamentarium of possible therapeutic uses.

Keywords: Semecarpus anacardium, Bhilwa, Antioxidant

89. ROLE OF PHARMACIST IN VACCINE DEVELOPMENT

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Abstract: Although vaccines are considered to be one of the most cost-effective means of preventing illness and death from certain diseases, some individuals are still reluctant to obtain vaccines recommended by the Advisory Committee on Immunization Practices. As frontline healthcare providers, pharmacists can act as patient educators and vaccine administrators and address vaccine hesitancy. By implementing effective communication strategies, pharmacists can inform patients about the safety and efficacy of available vaccines, address their concerns and fears, and dispel common myths and misconceptions, allowing patients to make informed decisions.

According to the World Health Organization (WHO), vaccination has substantially decreased the burden of certain infectious diseases, and the CDC has declared vaccinations to be one of the top 10 public-health achievements of the 20th century. The CDC also

notes that vaccines are responsible for preventing nearly 2.5 million deaths annually. The incidence, prevalence, morbidity, and mortality associated with vaccine-preventable diseases have considerably diminished since vaccinations became available.

The involvement of pharmacists and pharmacies in the vaccination campaign represents an important opportunity to confirm the professional role played and the function of a local health unit. The pharmacy is one of the points of contact and interaction most frequented by the population; it is widespread throughout the national territory, and thanks to its professionals, it plays and can play, even more, an essential role in the networks for the prevention and protection of the health of our communities. The SARS-CoV-2 pandemic has highlighted the necessity for close collaboration and integration between health professionals to ensure an influential response. The pandemic also made it clear how prevention is an essential component of our health and social systems and how this must find, alongside a precise and stronger organizational dimension, also a concrete and operational declination in the various aspects of our daily life and certainly in the moments contact with the various health services. In this work, through an analysis of the scientific

literature, we aim to identify and describe the advantages that can derive from the involvement of community pharmacists in prevention networks.

Keywords: Community pharmacy, Pharmacists, Immunization, Health promotion

90. VALIDATED SPECTROPHOTOMETRIC DETERMINATION OF ASPIRIN BY DERIVATIVE METHOD

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Abstract: The study makes an attempt to establish sensitive and accurate method reproducible for the estimation of Aspirin by spectrophotometric derivative method. Derivative spectroscopy involves the conversion of normal spectrum to its first second or higher derivative spectra. DS has been used for simultaneous determination of different mixtures in pharmaceutical formulation. Appropriate dilutions of aspirin were prepared for this and scanned in the spectrum which yields new maxima and minima and the point where derivative spectra cross the X-axis. The % RSD and correlation of coefficient for first order derivative spectra and the result of recovery studies indicates no interference due to excipients in the formulation. Analysis of authentic sample of aspirin showed no interference from the common additives and

excipients. The proposed methods are simple, precise, accurate, economic and rapid for the determination of aspirin. It can be easily and conveniently adopted for routine quality control analysis.

Keywords: Aspirin, Spectroscopy, Excipients

91. "A REVIEW: POLYHYDROQUINOLINE ACT AS BIOLOGICAL ACTIVE MOLECULES"

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Abstract: 1,4-Dihydropyridine (1,4-DHP) and polyhydroquinoline have a six membered aromatic rings. Pyridine ring system represents the major class of nitrogen heterocycles and its analogues exhibited diverse biological and physiological activities. Polyhydroquinolines, which are structurally related to DHPS, are another important group of nitrogen containing heterocycles that have attracted much attention because of their diverse therapeutic and pharmacological properties, such as their ability to modulate calcium channels. Polyhydroquinolines have been synthesized under mild conditions augmented by conventional heating, microwave irradiation, and uitrasound. Different polyhydroquinoline derivative synthesis were studied by using the reaction of dimedone, ethyl acetoacetate, substituted salicylaldehyde and ammonium acetate in ethanol in the presence of

differ catalyst. All the synthesized derivatives evaluated were biologically active they showed anticancer activity, antibacterial activity, antifungal activity, antimalarial activity, antituberculosis activity, antihypertensive activity, anticoagulant activity. Multicomponent reactions to produce a particular product were performed by the one-pot MCR's methodology that offers significant advantages over usual bimolecular reactions.

Keywords: Polyhydroquinoline, DHPS, 1,4-dihydropyridine, MCR's

92. MOLECULAR IMPRINTING

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Abstract: Molecularly imprinted polymers have been used in a variety of analytical procedures in analytical separation science, including liquid chromatography, capillary electro-chromatography and capillary electrophoresis, immunoassay, and elective sorbent in chemical sensors. The ability to create sorbents with selectivity pre-determined for a specific substance or group of structural analogues of environmental and biological materials is a benefit of imprinted polymers. Imprinted polymers' increased selectivity over traditional sorbents may result in clearer chromatographic traces in subsequent analytical procedures. In addition, problems like peak broadening and tailing that are often related to imprinted polymers in chromatography are not present in the solid phase extraction application. As chiral stationary phases for enantiomer separations, imprinted polymers have been the subject of the majority of liquid chromatographic experiments. In capillary electro-chromatography,

the use of imprinted polymers as selective sorbents has also been demonstrated. A method for producing artificial recognition sites on polymer matrices that complement the template in terms of size, shape, and spatial arrangement of functional groups is known as molecular imprinting. Molecularly imprinted polymers (MIP) have a high selectivity and affinity for the target molecules employed in the moulding process, which makes them an ideal polymer for use with molecular imprinting techniques.

Keywords: MIP, Chromatography, Sorbents, Affinity

93. STEREOCHEMISTRY

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Abstract: The study of the static and dynamic features of the molecules' three-dimensional forms is known as stereochemistry. It has long offered a base for comprehending both structure and reactivity. At the same time, stereochemistry is a legitimately fascinating area of study in and of itself. Simply said, the visual beauty of chemical structures and the exciting way that this area of study combines chemistry, geometry, and topology to investigate three-dimensional shapes intrigue many scientists. Additionally, stereochemistry has a number of extremely significant practical implications. Because the components of life—amino acids, nucleotides, and sugars— are chiral and manifest in nature in enantiomerically pure forms, nature is intrinsically chiral. Therefore, any materials developed by humans to engage with or alter nature interact with a chiral environment. For bioorganic chemists, this is a crucial topic, and for pharmaceutical chemists, it is a practical one. To

ensure that both enantiomers of a medicine are safe, the Food and Drug Administration (FDA) now mandates that it be produced in enantiomerically pure forms or subjected to stringent testing. This study, thus focuses on the various aspects of stereochemistry that can improve and modify the chemical activities and reactivity.
Keywords: Stereochemistry, Reactivity, Enantiomers, Chemistry

94. STUDY OF NEW SYNTHESIZED DERIVATIVES OF PYRAZOLES

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Abstract: Five-membered heterocyclic molecules known as pyrazoles have contributed significantly to the theory of heterocyclic chemistry. These substances are widely used as the primary structural component of a wide range of substances with biological properties like antifungal, anticancer, antiviral, antibacterial, anti-tubercular, and antiphrastic, in addition to important medicinal and agrochemical activities. An effort was made to create a simple and practical method of synthesising substituted pyrazolines by reacting aromatic aldehyde phenyl hydrazones with 4-methoxy cinnamonitrile while Chloramine-T was present. Using D-glucose as the starting point, this could prove to be a methodology for the synthesis of glucosyl pyrazole derivatives. The proposed microwave-mediated solvent-free techniques produced good reaction rates and yields, indicating that these steps can be regarded as simple, efficient, and environmentally

sustainable synthetic approaches to produce pyrazole derivatives. Compared to the conventional process, this one avoids utilising very dangerous substances while yet offering an efficient way to make sugar-heterocyclic derivatives. The EATOS software, particularly in relation to the novel "one-pot" approach, validated this.

Keywords: Pyrazoles, Substituted Pyrazolines, D-glucose, EATOS

95. STUDY OF RECENTLY SYNTHESIZED DERIVATIVE OF QUINOLINE

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Abstract: Quinolines and their fused heterocyclic derivatives, which have been tested for a variety of pharmacological functional groups, are a crucial class of compounds for the development of new drugs. As a result, numerous experiments have synthesised these compounds as target structures and assessed their biological activities, which include anti-cancer, anti- bacterial, anticonvulsant, anti-malarial, anti-inflammatory, and cardiovascular activities. A class of synthetic, broadly acting antibacterial medications is known as quinolines. Although the majority of quinolones used in medicine are fluoroquinolones, derivative chemicals work against bacteria by inhibiting bacterial DNA from unwinding and replicating within bacterial cells. Numerous techniques have occasionally been developed for the synthesis of quinoline and its derivatives by microwave-assisted, ultrasound-promoted, or heterogeneous

acid-catalyzed methods because they have a wide range of pharmacological activities and are also used as ligands in various biologically-modelled transition metal complexes. Other others, under UV light or solvent-free circumstances. Most of these techniques that have been described in the literature have been compiled by us here. The researcher working in this topic will find this review to be of great use. And it would assist them in creating a fresh, cost-effective, efficient way.

Keywords: Quinoline, Pharmacology, Ligands, Anti-Cancer

96. STUDY OF NEW SYNTHESIZED DERIVATIVES OF PYRAZOLES

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Abstract: A five membered ring system known as pyrazoles are the important members of heterocyclic compounds. Pyrazole analogues have been known to exhibit antimicrobial, analgesic, anticancer, anti-tubercular, anti- inflammatory, antidepressant, anticonvulsant, ant hyperglycemic, antipyretic, antihelmintic, antioxidant and herbicidal properties. Various methods have been performed for preparation and synthesis of substituted pyrazoles by the reaction of 1,3-diketones with hydrazine's 1,3-dipolar cycloaddition of diazole compounds with alkynes and the reaction of a ß-unsaturated aldehydes and ketones with hydrazine's. A facile and convenient route of synthesis for substituted pyrazolines based on the reactions of aromatic aldehyde phenyl hydrazones with 4-methoxy cinnamonitrile in the presence of Chloramine-T has been developed. Using D-glucose as the starting material a protocol for the synthesis of glucosyl

pyrazole derivatives was made.The proposed microwave- mediated solvent-free techniques produced good reaction rates and yields, indicating that these steps can be regarded as simple, efficient and environmentally sustainable synthetic approaches to produce pyrazole derivatives. Compared to the conventional process, this one avoids utilizing very dangerous substances while yet offering an efficient way to make sugar-heterocyclic derivatives. This is confirmed by the EATOS software, especially with regards to the new "one-pot" method.

Keywords: Pyrazoles, Substituted Pyrazolines, D-glucose, ETAOS

97. DIABETES MELLITUS

Musa Baig, Suhail Peerzada

Abstract: Diabetes Mellitus is a metabolic disorder characterized by hyperglycaemia, glycosuria, and hyperlipidemia. At present, India is considered as the diabetic capital of the world. There are approximately 3.5 crore diabetics in India, and this figure is expected to increase up to 5.2 crore by 2025. Two major types of diabetes mellitus are IDDM and NIDDM. Insulin is a hormone. And like many hormones, insulin is a protein. Insulin is secreted by groups of cells within the pancreas called islet cells. Discovery of Insulin is appropriately attributed to Banting and Best. It is made up of 51 amino acids having two chains. Chain A have 21 and Chain B have 30 amino acids. The more commonly used types of insulin are Rapid-acting (aspart or Lispro), Short-acting (regular insulin), Long-acting (ultralente insulin), Insulin glargine and insulin detemir. Insulin delivery systems that are currently available for the administration of insulin include syringes, insulin infusion pumps, jet injectors and pens. Insulin syringe is the most commonly used, and the most economical of all the delivery devices. Insulin pump is known as continuous

subcutaneous insulin infusion therapy. A jet injector is a type of medical injecting syringe that uses a high-pressure narrow jet of the injection liquid instead of a hypodermic needle to penetrate the epidermis. Pen is reusable and prefilled device. Many insulin delivery devices are under process. The purpose of this review is to focus more light on the insulin as a prime drug for the treatment of diabetes from historical era to present time.

Keywords: Diabetes Mellitus; Proteins and Peptides; Insulin Drug Delivery Systems

98. SYNTHESIS OF NEW SUBSTITUTED ALDEHYDEDERIVATIVES

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Abstract: the aim of this research is to prove benzimidazole is a good bioactive molecule hence, it is worth to synthesis some new benzimidazole derivatives for better Anti-microbial activity by inhibiting the bacterial neucleic acid and proteins synthesis. This ability of benzimidazole is due to their structural similarities with the purine. In recent years, benzimidazole moiety have attracted much attention for their excellent biological properties, such as antimicrobial, anti- inflammatory,Antitubercular, anthelmintics, and Antitumor activities. Nitrogen containing heterocyclic important compound is a benzimidazole constitute an important class of biologically active e.g. antimicrobial, antiviral, and anti- inflammatory agent's.in this research chemicals used are O-phenylenediamine, benzaldehyde, ammonium chloride, ethyacetate, hexane, ethanol, silica gel-254. In Proposed scheme for reaction O-phenylenediamine is

reacted with benzaldehyde to give 2 phenyl 1-H benzimidazole. Purity of 4- hydroxybenzaldehyde was cheked by TLC method when it was run under the solvent system of ethyacetate, hexane (1;2), Rf value was found to be 0.65.several other derivatives of substituted benzimidazole can be prepared and evaluated for their antimalarial activity. Same derivatives can also be evaluated for other activities like anti tubercular, anticonvulsant. Structutal based drug design in order to optimize the pharmacological profiles.

Keywords: Benzimidazole, TLC, Silica Gel, Heterocyclic, Bioactive Molecule.

99. GREEN SYNTHESIS OF BENZIMIDAZOLE

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Abstract: Green chemistry is the new and rapidly emerging field of chemistry. It involves The utilization of a set of principles that reduces or eliminates the use or generation of Hazardous substances in the design, manufacture and application of chemical products. In Recent decades, a large number of reports related to synthesis of Nitrogen, Oxygen and Sulphur containing heterocyclic have appeared owing to a wide variety of their biological Activity. In recent years, numerous reports concerning the synthesis of heterocyclic Compounds under various conditions like solvent-free, reactants immobilized on solid Support, microwave irradiation condition, green catalyst and green solvent have appeared.benzimidazole is a heterocyclic aromatic organic compound. It is an iimportan Pharmacophore and privileged structure in medicinal chemistry. It plays a very important role With plenty of rational therapeutic activities such

as antiulcer, antihypertensive, analgesic,Anti-inflammatory, anti-viral, antifungal, anticancer, and antihistaminic. Because of its Importance, the methods for their synthesis have become a focus of Synthetic OrganicChemists. Therefore in the present review I tried to compile the chemistry of differentDerivative of substituted benzimidazole and some of the important methodologies used for theSynthesis. Conventional methods of synthetic reactions need longer heating time, elaborateAnd tedious apparatus set up which result in higher cost and environmental pollution inContrast to greener methods which are ecofriendly and economical.

Keywords: Benzimidazole, Bulk Synthesis, Green Synthesis, Ecofriendly.

100. PHYTOCHEMICAL STUDIES OF CLOVE

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Abstract: The aim of present study was to investigate the phytochemical screening and to compare the antimicrobial activity of oils of Clove bud and Cardamom.

Clove bud was successively extracted by steam distillation and isolated with Dichloromethane. The phytochemical analysis revealed the presence of alkaloids, glycoside, steroids, carbohydrates, terpenoids, tannins and phenolic compound.

The dichloromethane extract was chromatographed over silica Gel (60-120) and eluted with pure toluene, toluene: Dichloromethane (9:1), toluene: Dichloromethane (8:2), toluene: Dichloromethane (7:3), fraction were monitored by T.L.C. similar fractions were combined and concentrated .eleven fractions were obtained and were labelled as f1, f2, f3 to f11. Cardamom fruit was successively extracted with petroleum ether. The phytochemical analysis

revealed the presence of alkaloids, glycoside, steroids, protein, carbohydrates, terpenoids, tannins and phenolic compound. The Petroleum ether extract was chromatographed over silica Gel (60-120) and eluted with pure Benzene, Benzene: chloroform (9:1), Benzene: chloroform (8:2), Benzene: chloroform (7:3), Benzene: chloroform (6:4), Benzene: chloroform (5:5), Benzene: chloroform (4:6), and with pure chloroform. Fractions were monitored by T.L.C. similar fractions were combined and concentrated.

Fourteen fractions were obtained were labelled as fcd1, fcd2 to fcd14. Antimicrobial activity was performed by Disc diffusion method on the staphylococcus aureus (+ve), Escherichia coli (–ve), Pseudomonas aerugenosa (-ve) bacteria and was found that cardamom and clove extract both were similar active for Pseudomonas aerugenosa (-ve) but cardamom was more active for E. coli than clove extracts.

Keywords: Phytochemical Screening, Chromatograph, Disc Diffusion, TLC, Cardamom, Clove Bud.

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